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Curriculum reform in the Faculty of Health Sciences at La Trobe University

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**Curriculum Reform in the Faculty of Health
Sciences at La Trobe University**

Hal Swerissen

A thesis submitted for the degree of Doctor of
Business Administration in Higher Education
Management

University of Bath
School of Management

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Preface

This thesis is concerned with the factors that affect sustainable change for teaching and learning practices in higher education. It does so by investigating the extent to which a curriculum reform strategy was successfully implemented at the Faculty of Health Sciences at La Trobe University. As the Executive Dean of the Faculty, I was responsible for the development and implementation of a Faculty wide curriculum reform programme over the three and half years which is the focus of this thesis. I was interested in whether the reforms were implemented as planned, the extent to which they led to improvements in the efficiency and effectiveness of teaching and learning practices and the factors which affected their sustainability. In this respect, I was particularly interested in staff support or opposition to the changes and their perceptions of the impact of the changes on their role and identity. To explore these issues, I developed a mixed methods case study of the changes that were introduced. My intention was both to develop a better understanding of the factors that were important for improving teaching and learning in the Faculty of Health Sciences at La Trobe University and to use the case study to contribute to a broader understanding of the issues that are important for ensuring sustainable curriculum change in higher education organisations more generally.

Part I

Introduction

Chapter 1: Introduction and Context

Teaching and learning are central to the purpose of universities and higher education. Arguably, the principle purpose of teaching is for students to acquire valuable and useful knowledge, skills and attitudes through a set of experiences they find interesting, challenging and rewarding. Most students also want their university education to be relevant for professional employment.

Institutional models for teaching and learning specify preferred strategies for organising curriculum and teaching methods. They include norms, incentives and sanctions for promoting particular forms of academic practice in relation to teaching and learning. These are formalised through the curriculum, which outlines the sequenced organisation of content and processes to achieve a set of outcomes within a particular context (e.g. entry into a profession or discipline). It is the body of knowledge which is to be taught, the learning outcomes that are to be achieved, the process by which learning is to occur and the relationship between the student, the teacher and the broader purposes of study (Smith 2000).

These are complex activities which are typically managed within universities as a course sequence comprised of individual subjects or teaching units. Although in Australia, universities are self-accrediting institutions, traditionally, professional and discipline communities have been extremely important in determining the standards and organisation of curriculum and course delivery. The organisation and standards of the curriculum are often determined through expert peer review procedures developed and reviewed by professional or discipline bodies.

In practice, the relationship between the processes of external review and the specific practices of particular academic units is complex. Universities regard themselves as self-regulating institutions and reviews are therefore constrained. Provided staff members are well qualified and facilities are appropriate, external review often sets only a broad framework for the specific content to be covered, the outcomes to be achieved and the teaching and learning strategies to be adopted.

Usually, detailed curriculum content learning outcomes, and teaching and assessment methods have been left to individual academics to determine. It has been assumed they are experts in their field and therefore in the best position to make these decisions. Internal processes of self-regulation within universities ensure that broad curriculum guidelines are followed, students are reasonably satisfied with their experience, that attrition rates and student progression are acceptable and that there is a regular cycle of peer review.

But traditional models of university education have been the subject of criticism by government, industry and students as inefficient, ineffective and unresponsive to their needs (e.g. Business Council of Australia 2006). The majority of Australian students say they do not develop sufficient work related skills and knowledge as part of their university education (Australian Council on Educational Research 2016) and about a third of graduates say they are not well prepared for their employment once they are working (Oliver, Freeman et al. 2014).

Pressure for change

Demands for greater efficiency, effectiveness, equity and relevance of teaching and learning have increased as higher education has become more central to economic progress and development. In response, the Australian Government has introduced a demand driven funding model to encourage higher education reform (Kemp and Norton 2014).

The Australian student demand driven funding model allows all students who qualify for higher education to choose a course or institution at which to study. Effectively, higher education providers can provide as many places in undergraduate courses as there is student demand. Funding follows the student. This has led to a significant increase in aggregate demand for places and a consequent expansion in overall provision (Norton 2013).

The Australian model included the establishment the Tertiary Education Quality and Standards Agency (TEQSA)¹ to reduce risks to quality for teaching and learning. TEQSA has set standards for institutional and course accreditation based on an Australian Qualifications Framework (AQF)² agreed by the Commonwealth and State Education Ministers. The AQF sets out a qualifications framework for all levels of Australian education.

But interestingly, in Australia at least, formal structures requiring greater accountability to employers and industry for graduate attributes and outcomes and the number of graduates being produced have not been introduced. Student, rather than employer demand drives the university sector. Employers have little say in graduate numbers or the knowledge, skills and competencies they are expected to have. This is in sharp contrast to the Australian Technical and Further Education sector where Industry Skills Councils are responsible for curriculum and graduate outcomes (Department of Education and Training 2016).

The institutional impact of change

Nevertheless, TEQSA and the competitive pressure of a system driven by student preferences has led to significant change. University executives (Vice Chancellors, Deputies, Pro Vice Chancellors and Executive Deans) now much more actively manage the efficiency, quality and reputation of their courses as part of a strategy to increase student demand, while ensuring they meet externally determined quality standards. Therefore, a range of curriculum reform strategies to change the way teaching and learning are organised and conducted have been introduced.

Most Australian universities now have a Deputy Vice Chancellor (or similar) position with responsibility for teaching and learning. Organisational units with responsibility for curriculum support and staff development are in place in virtually all institutions. Given that academics are not required to have an educational qualification on appointment, these units often have responsibility for professional development in teaching and

¹ <http://www.teqsa.gov.au/>

² <http://www.aqf.edu.au/>

curriculum design. They also provide support to departments, schools and faculties for curriculum design, development and implementation and they monitor and evaluate the institutional effectiveness of teaching and learning.³

Direct government subsidies for higher education have been reduced and replaced by student fees and charges. Formal legislative control and direction by government has shifted toward accountability on explicit performance criteria focused on efficiency and quality. External regulatory agencies have increasingly replaced internal, professional self-regulation (Neave and van Vlugt 1991, Neave and van Vlugt 1994). With dramatically increased participation, there has been pressure on institutions to shift from a focus on internal self-management and regulation to greater external accountability for their performance either directly to government or, more recently, through more devolved quasi market structures (e.g. Huisman and Currie 2004, Peters 2004).

Governments (at least in Australia) now steer universities from a distance (Marginson 1997, Marginson and Considine 2000) through funding, performance management and regulatory mechanisms. University administrators are expected to adopt more corporatist and managerialist perspectives to focus their institutions on the needs of consumers (students).

For academic staff, it is arguable that although academic identity is negotiated, changing and variable, for many autonomy, self-regulation and discipline allegiance remain critically important. For these staff, disinterested service, and the independent, excellent and critical generation and dissemination of knowledge and practice are as important as allegiance to a particular university or college. As institutions introduce corporate managerial approaches to improve the efficiency and effectiveness of teaching and learning, tension with academic staff is therefore likely.

³ See for example the Australian Learning and Teaching Council <http://www.altc.edu.au/> and the LH Martin Institute <http://www.lhmartininstitute.edu.au/>

Gaps in the research

While universities are beginning to address the challenges of a radically changing Australian higher education environment for the design and management of their main function – teaching students – reform is only recent. The principal focus of Australian university senior management has been on the maintenance of financial sustainability through revenue growth and cost reduction of the existing delivery model. The result has been that more students (particularly full fee paying international students) have been enrolled, average class sizes have been increased, student to staff ratios have increased, tutorial and small group teaching processes have been reduced, academic workloads have been increased and the casualization of teaching has increased (Larkins 2011). Arguably, without significant reform of teaching and learning processes, these measures are likely to result in declining quality in student experience.

Other measures such as the introduction of more efficient administrative and purchasing arrangements and reductions in unnecessary overheads such as vehicle fleets and under-utilised assets have also been introduced. There has also been a general reduction in staff entitlements such as travel and access to outside studies programmes. In some cases, more dysfunctional, short term strategies, including the failure to adequately maintain assets have been adopted.

More recently, as competition has increased, processes to review courses and subjects with unsustainably low levels of student demand have been introduced. This has resulted in the rationalisation and closure of subjects and courses across a number of Australian universities. There has been comparatively less examination of corporate, institutional strategies designed to improve the efficiency and effectiveness of teaching and learning. Notwithstanding the pressures for reform, in Australia, it is arguable that curriculum in higher education is significantly under developed and that teaching and learning processes and outcomes remain highly variable (Henard 2010).

Interestingly, as the next chapter will argue, while there is an extensive literature on curriculum reform in higher education, including the more recent impact of digital technologies, very little of it has been concerned with the institutional efficiency and

effectiveness (productivity) of higher education teaching or the corporate strategies which are required to improve institution-wide teaching productivity. Nor is the literature on the process of implementing institutional reform of curriculum and teaching well developed.

The introduction of markets and increased competition, (including international competition) is likely to produce innovation in curriculum design and the delivery of teaching to improve efficiency and flexibility, improve financial returns and reduce institutional risk. At the same time, the introduction of increased external regulation in Australia will require universities to ensure they maintain quality against externally determined standards and review processes while they pursue increased efficiency and market share.

The purpose and structure of the thesis

This thesis sets out a specific case study of curriculum reform in the Faculty of Health Science at La Trobe University. The reforms were introduced to address increasing competition in Australian higher education as outlined above. The reform strategy included the introduction of a new degree structure for all undergraduate courses, a new common first year for all professional programmes, a new approach to clinical training, an enquiry based learning model for all professional courses and the introduction of interdisciplinary schools. The case study investigates whether the reforms were implemented as planned, the impact of curriculum reform on the efficiency and effectiveness of teaching and learning, and the impact of change on academic staff perceptions of their identity and autonomy.

The thesis is structured in three parts. Part one introduces and sets the context, reviews the relevant literature, sets out a research statement and outlines the method for the case study. Part two presents the case study including the organisational context for the Faculty of Health Sciences at La Trobe, the curriculum reforms, the implementation process and the outcomes that were achieved. The findings of the case study, its limitations and implications are discussed in part three and conclusions are drawn.

Chapter 2: Literature review and research statement

Introduction

The curriculum model adopted by an institution sets out the attributes of teaching and learning to which it is committed. It is the academic plan for courses or study programmes that guides and shapes the practices of academic staff (Stark and Lattuca 1997). It includes intended educational student outcomes and graduate attributes, the educational processes and technologies used to achieve them and the structure and organisation of the content that is being learned and taught (Biggs and Tang 2007).

Curriculum reform is the process of changing these academic learning and teaching practices through the development and implementation of academic plans. For higher education institutions, curriculum reform is a form of organisational change.

This chapter reviews the literature on curriculum innovation and organisational change in higher education with a focus on health sciences. It describes how curriculum is commonly defined and the models that have underpinned the processes of curriculum design, implementation and evaluation. Organisational change for curriculum reform is examined in the context of the widespread introduction of New Public Management in higher education and its impact on institutional cultures and academic identities.

Curriculum renewal in higher education

Higher education faces widespread pressure to improve the quality, outcomes and efficiency of teaching and learning in higher education. As outlined in the previous chapter, the context for higher education institutions is changing rapidly. Governments see higher education as central to economic and social development. Student numbers have increased massively. Dramatically expanded funding has followed and, unsurprisingly, higher education institutions have experienced demands for improved performance in meeting policy objectives.

More recently, disruptive digital technologies are beginning to shape higher education teaching and learning. This has seen the development of Massive Open Online Courses, online learning management systems like Moodle and Blackboard, virtual classrooms and video streaming. These are increasingly blended with face to face group learning and interaction for on campus students as well (Gallagher and Garrett 2013).

Consequently, teaching and learning strategies have become much more diverse and a vast expansion of blended and online learning is under way. In their recent review of the impact of these technologies Gallagher and Garrett (2013 p10) have argued that universities will need to understand that creating and sharing knowledge with students is no longer enough. Universities will need to be much more self-reflective, self-critical and focused on their students if they are to succeed in an increasingly competitive environment. This leads to a consideration of the options for curriculum renewal that are available.

Proposals for curriculum renewal are guided by a range of curriculum models and theories. Following Smith (Smith 2000) curriculum can be thought of as incorporating four perspectives: the knowledge or skills to be transmitted, the learning outcomes to be achieved, the process for teaching and learning and the values and process of reflection on practice which underpin both the outcomes and the process. Similar formulations have been proposed by Hicks (2007). Curriculum design defines how these elements are combined. In effect, the curriculum is the academic plan for a course or sequence of study (Stark and Lattuca 1997).

Academic plans define what students learn, why they learn and how they learn as well as the methods to decide whether they have learned what they are supposed to have learnt. As Toohey (1999) notes, curriculum has to be structured to enable learning to occur over time. Curriculum is formulated around the logical structure of the subject matter for particular courses or disciplines; the development of capabilities and attributes; enquiry or problem based structures; cognitive structures with overarching themes or a combination of these approaches.

For universities and faculties academic planning is central to the management and organisation of the institution. Institutionally, the logic of planning is that inputs (students, staff, facilities, materials) are organised through processes (learning and assessment activities) to produce outputs (students completing modules; graduates) with specific qualities and outcomes (student capabilities and attributes) and these in turn have an impact in their application (graduate achievements in professional and work related settings) (cf. Stake 2004).

Increasingly curriculum models suggest that courses should focus on the graduate capabilities which are the intended learning outcomes of courses, rather than on the content to be disseminated through teaching. This is not an uncontested trend and there are trenchant critiques of outcomes based education, particularly when it is applied generically for managerial purposes. Outcomes based education has been criticised because it restricts teaching innovation and places unreasonable and unnecessary demands on academics to specify outcomes and assessment strategies for institutional accountability and benchmarking (Harden 2002, Biggs and Tang 2007)

On the other hand outcome based education which is focussed on aligning content with learning outcomes for particular learning tasks to ensure students achieve these outcomes has significant support in the literature (Biggs and Tang 2007). With the learning process, the delivery of content is seen as an enabling factor for students to acquire capabilities and attributes. The process of learning is emphasised, with students seen as active participants who construct and acquire knowledge, skills and attitudes through problem solving, engagement and application (Barrie 2007, Biggs and Tang 2007). The development of critical, independent thinkers, who are prepared for a future that is largely unknown, is generally considered to be an important aspect of curriculum planning (Barnett 1997, Bowden and Marton 1998).

In higher education, learning is organised through programmes or courses of study. A course of study is usually defined as a sequence of modules (e.g. subjects, units) which incorporate particular modes of teaching (e.g. lectures, seminars, laboratories, tutorials, practicum) and assessment methods (e.g. exams, essays, assignments). More broadly courses are organised through learning periods (e.g. semesters, trimesters, terms),

timetables, prescribed student workloads (e.g. credit point hours) and resource allocation formulae (e.g. staff student ratios).

In higher education, curriculum design and teaching is often the province of individual academics replicating traditional discipline based practices, and the organisation of learning and teaching is heavily reflective of these practices. Academics are usually appointed because of their research and scholarly track record and experience. Until quite recently, they have not had to have formal knowledge of how students learn, curriculum design or the process of teaching. In Australia, academic interests continue to be focused on research rather than teaching. In a recent survey, only about seven per cent said their primary interest was teaching compared to 26% who were primarily interested in research. While the remainder were interested in both teaching and research, overall two thirds were more interested in research than teaching. Despite more recent trends, the majority of academics have not undertaken training in university teaching, nor have their institutions made it mandatory that they do so (Bexley, James et al. 2011).

Even for professional programmes, academics often only have a limited and partial understanding of the attributes graduates will need in the employment settings they will face and these attributes can change quickly over time. Courses tend to be organised as a loosely connected sequence of modules - a certain set of which must be completed to graduate regardless of the students' pre-existing knowledge, competences and skills. The relationship between modules and the attributes students should have acquired by graduation is often unexamined and unspecified. Until very recently, curriculum has been a poorly understood issue amongst higher education academics (Candy, Crebert et al. 1994). It has often been seen as simply the content to be taught in a particular course (Fraser and Bosanquet 2006).

Notwithstanding pressure to change, courses are still primarily delivered didactically through lectures, tutorials, laboratories and so on and assessment remains overwhelmingly summative rather than a formative component of the learning process. Teaching periods for courses generally use only about half the annual time available. The pre-requisite subject sequence is usually highly constrained and options to obtain credit by demonstrating competency course modules are limited. As a result, students are often

required to participate in a relatively inefficient and inflexible learning sequence, regardless of their competencies, commitment or personal preferences. More broadly, there continues to be significant disquiet about the dichotomy between critically reflective learning to produce 'reflective practitioners, social critics and good citizens' and 'vocational education' (Star and Hammer 2008).

Curriculum reform and the health sciences

Notwithstanding institutional inertia, the literature overwhelmingly supports curriculum reform based on student and learning centred approaches to teaching and learning (Barr and Tagg 2000). In these models emphasis is placed on specifying the learning capabilities and objectives to be achieved and that specific learning sequences are designed to achieve them. Evidence based approaches are increasingly incorporated into curriculum design, often based on constructivist models of learning, which emphasise active learner engagement to acquire factual, cognitive, procedural and meta cognitive knowledge, skills and attitudes (Biggs and Tang 2007). Enquiry and problem based curriculum models are typical of this approach. They encourage students to learn by applying knowledge and skills in context. Students are asked to answer questions or solve problems related to specific scenarios, case studies or problems. Problems and enquires are designed to facilitate self-reflective and self-directed learning. Often these approaches also organise students in small groups to address enquiries and problems. This provides peer support and tutoring and encourages students to develop team work skills (Barrows and Tamblyn 1980).

Enquiry and problem based approaches to learning have been widely advocated for use in health sciences and medicine as more effective than traditional didactic approaches (Neville 2009). Typically, the health science curriculum includes foundation knowledge about human biology, pathology and disease, the psychology of health and illness, social determinants of health and the organisation of the health system. Foundational knowledge is integrated with knowledge, skills and values required for clinical practice in pre-clinical and initial (observational) clinical experience. Usually this includes learning clinical reasoning and evaluation, communication and team work, professional ethics and responsibilities and specific technical, treatment and intervention skills. As students acquire increasingly integrated knowledge, skills and attitudes applicable to clinical

situations, they are provided with the opportunity to learn their application in controlled clinical environments with patients and health care clients.

Enquiry and problem based curricula usually engage students by requiring them to address problems or questions in a case or scenario. Problem based learning (PBL) was developed in the 1960s (de Graaf 2006). Curriculum development involves the design of a detailed set of problems, cases or scenarios which require the development of a set of knowledge, skills and attitudes considered important for practice to provide satisfactory answers and solutions for the problems which are set. Students work independently and in small groups to answer the questions or solve problems. They conduct research, discuss their findings, refine their knowledge and answers, and learn the skills of team work, collaboration, argument and presentation. These activities are often self-directed and negotiated within small groups. Initially, scenarios and cases are more structured and greater guidance is provided. Over time, students are encouraged to become independent in establishing their learning objectives, acquiring skills and knowledge and solving problems and answering questions (Wood 2003).

Systematic reviews of enquiry and problem based learning in relation to medical education, where there has been most investment in curriculum reform, indicates that, compared with those who engage with traditional teaching methods, students who take part in problem based learning programmes perform slightly better on clinical reasoning and diagnosis and they tend to be more satisfied with the learning programme in which they are engaged, but they do no better on measures of knowledge as measured by national licensing exams. (Colliver 2000, Norman and Schmidt 2000, Neville 2009). Koh et al (2008) reviewed 13 studies and assessed differences between problem based and traditional curricula on 38 competencies. They found that medical graduates who had participated in problem based learning curricula rated more highly on coping with uncertainty, appreciation of legal and ethical aspects of health care, communication skills, and self-directed learning.

There is a set of studies which have investigated the introduction of new curriculum models for health sciences within specific institutions. des Marchais et al (1992) describe the rationale and approach for introducing the PBL model at Sherbrooke School of

Medicine in Quebec. They note the concerns that the traditional didactic approach is a poor preparation for life-long learning and often lacks relevance to professional practice in areas like medicine. In their description of the introduction of the PBL model, they point out the importance of a carefully planned strategy which has the capacity to overcome initial resistance and to sustain change over a long period. Typically medical courses are six or seven years in duration, staff are heavily committed to traditional teaching and assessment approaches, and there are concerns about the costs of transition and the potential impact on other areas of activity such as research and clinical practice. The approach at Sherbrooke emphasised identifying the need for change, selecting a solution, planning for implementation and adopting the solution. Although they describe a successful process of change, there is little discussion of the specific challenges and issues that arose and how they were overcome. Nor is there systematic description of changes in the efficiency and effectiveness of the curriculum or changes in staff roles and perceptions.

In Australia, Harris et al (2010) describe a case study of the implementation of a generic undergraduate degree in health sciences. They argue for the use of longitudinal, multilevel and mixed methods evaluation strategies. They suggest a phased approach to evaluation and implementation based on Stufflebeam and Madaus' (2000) evaluation model. Their model suggests change begin by benchmarking and information gathering, followed by planning, preparation, curriculum design and the development of indicators and finally the implementation and monitoring of the new curriculum. Their evaluation of the introduction of a generic health sciences degree at the University of Sydney utilised student and graduate evaluations, administrative data and qualitative data from staff and students. Again, there is little discussion of the broader organisational and efficiency issues that need to be addressed in curriculum reform. While they note the extent to which academics have, until recently, been unfamiliar with systematic and evidence based approaches to curriculum design and teaching and learning methods, they do not explicitly address these issues in their evaluation design.

Overall, the evidence suggests that there is a modest but important advantage to problem based learning. Notwithstanding the controversy which still exists, as Wood (2008) argues it is now the case that many of the processes used in problem based learning (e.g. small

groups, fewer lectures) are a feature of many undergraduate curricula and it is becoming more difficult to differentiate between different types of curriculum.

The student centred approach embodied in enquiry and problem based learning has been augmented by a range of additional strategies. These include peer teaching and review; academic mentoring; support for cultural pluralism; student orientation programmes; individualization, modularization and credit transfer; competency assessment and support; and work integrated (experiential) learning. Notwithstanding its limitations, there is much more research on the effectiveness of problem and enquiry based learning, largely because these approaches have been developed in well-funded medical and health sciences programmes. By contrast, there is little analysis of the effectiveness of the additional curriculum features outlined here, although they are often advocated as part of a student centred approach.

It is also the case that although problem and enquiry based learning have been widely advocated in health sciences, in practice, this is less so for other allied health and nursing than medicine (Wozniak, Mahony et al. 2005). The development of enquiry and problem based curriculum requires considerable time and effort and significant change in the way courses are delivered. Medicine has been better resourced to address these issues than other health sciences.

The literature on curriculum reform indicates there is an enormous range of innovation in the design and implementation of learning and teaching strategies in higher education. Much of this is small scale, based around individual disciplines or departments and involves comparatively limited numbers of staff and students. Evaluation designs tend to focus on student and staff perceptions rather than on learning outcomes or the efficiency of teaching and learning.

Evaluating curriculum reform

Evaluation has been defined as “judging the worth or merit of something or the product of the process”(Scriven 1991p. 139). The products and processes Scriven refers to are often defined as programmes which combine inputs and processes to produce outputs, impacts and outcomes. Stake defined educational programme logic as intended

antecedents (the factors that need to be in place prior to an educational programme becoming operational), transactions (activities and outputs) and outcomes (Stake 1967, Stake 2004). Similarly, Stufflebeam and Madaus (2000) developed their Context, Inputs, Processes, Products (CIPP) model. The organisation of educational and human services as programmes has its antecedents in the United States during the 1960s when rational, evidence based management models came into vogue, particularly following concerns that the United States might be falling behind the Soviet Union in technological development (Worthen 1990).

Evaluation models are generally concerned with the extent to which programmes have been implemented as planned (process evaluations), the extent to which planned outcomes have been achieved (impact/outcome evaluations) and the efficiency with which implementation and outcomes were achieved. The purpose of evaluation may also be considered. In this respect, formative evaluations are primarily intended to assist in the implementation of plans. Summative evaluations are more concerned with making evaluative judgements of the worth of a programme (Owen 2006).

Evaluation criteria vary. Process evaluations principally concern themselves with the extent to which the key elements of planned change were actually observed and the extent to which key stakeholders such as staff and students were satisfied with the changes which were implemented.

Outcome and impact evaluations focus on the extent to which the objectives of change were achieved. These may be more proximate (e.g. improved student progression and reduced attrition) or more distal (e.g. improved graduate capabilities in work and professional settings).

Efficiency evaluations are concerned with the cost of producing outputs and outcomes. Cost is usually measured in monetary terms as the resources (e.g. staff, materials, facilities) required to achieve the outputs (e.g. students taught) or outcomes (e.g. students graduating) achieved through the implementation of the plan. Costs include the direct costs of delivering services such as teaching (e.g. staff, rooms, materials) and the indirect costs (e.g. administrative support, facilities maintenance, utility costs) incurred. In a full

cost analysis, the costs of participation for those receiving services (e.g. students, patients), including their opportunity costs (e.g. foregone earnings while studying) is also included.

Process and outcome evaluations, whether formative or summative often involve both qualitative and quantitative designs and methods. Experimental designs, including randomised selection to ensure generalizability of results to broader populations and allocation of participants to either intervention or control conditions to allow attribution of causality, are rare. Quasi experimental designs, including cohort studies and time series designs are more commonly employed.

Broadly, efficiency evaluations may consider either technical efficiency or allocative efficiency. Technical efficiency is the cost per unit of output or outcome (e.g. taught student, graduate). Technical efficiency is improved when the overall cost per unit of output or outcome is reduced without reducing the quality of outputs or outcomes. Technical efficiency is usually evaluated using cost efficiency methodologies.

Allocative efficiency is the value of the resources required to achieve the outcomes (e.g. teaching required to graduate a student) compared with the value (benefits) of outcomes achieved. Benefits include the value of personal benefits (e.g. income earned, increased life expectancy, enhanced social position) and public or social benefits (e.g. value of the work produced by graduate over time). Allocative efficiency is maximised when the ratio of the cost of producing an outcome (e.g. a graduating student) compared with the benefits achieved through the outcome (e.g. the personal and social contributions accrued by a graduate) are maximised. Allocative efficiency is usually evaluated using cost benefit methodologies.

Most efficiency analyses focus on cost efficiency, particularly for smaller scale analyses. While it is generally possible to estimate the direct and indirect costs of implementing services, it is more difficult to estimate the cost of participation by service users (e.g. students) and the value of the benefits which are achieved, particularly for intangible outcomes like 'knowledge'. Determining the benefits of the outcomes achieved is also difficult because they are often realised much later in time than the point at which services

are delivered. Methodologically and pragmatically it is therefore difficult to implement full cost benefit analyses to evaluate allocative efficiency.

The politics of curriculum evaluation

Decisions about curriculum evaluations should take account the purpose of the evaluation and the intended audience. It is worth noting this perspective has led to its own school of 'utilisation focused evaluation', pioneered by Michael Patton (Patton 2008). Stakeholders have different and competing interests in the outcomes of curriculum evaluations. In higher education, the stakeholders include the funders and regulators, the senior management of institutions, the academic staff, the students and those who employ them. In practice the funders and regulators act as proxies for the students and employers. Competing perspectives on evaluation then centre on the views of funders and regulators, institutional leaders and managers and academic staff.

Leathwood and Phillips (2000) argue that curriculum evaluation in higher education has progressively placed greater emphasis on graduate outcomes and their relevance for future careers and employment. They contrast summative, institutionally focused approaches to curriculum which have their origins in government demands for greater accountability and transparency with teacher focused, action research strategies for curriculum improvement which have arose from research in the secondary school system. The first has generated a range of data on performance indicators to compare institutions. The second is much more focused on the practice of individual academics.

Institutional demands for accountability and transparency have led to a range of performance indicators including measures of student satisfaction, student progression and attrition, graduate outcomes and cost per student. Performance review models are important to institutional decision makers who should make comparative judgements about the allocation and investment of scarce resources.

However, as Leathwood and Phillips (2000 p. 315) note there are criticisms of the 'reliability of single, summative measures in a context of institutional diversity and high variation in student performance, as well as the validity of subsequent explanations and implicit causal assumptions'. There is little doubt that disciplines, schools, faculties and

universities will argue the validity and value of comparisons with one another or measures such as, unit costs, student ratings, graduate outcomes and overall institutional rankings.

Alternatively, it is possible to argue for curriculum evaluation based on qualitative, context driven models of performance improvement. These 'teacher as action researcher' models of curriculum evaluation are seen as producing more relevant, contextualised research on subject and learning processes (Leathwood and Phillips 2000). But, this approach is time intensive and has generally not been taken up by individual academics as a standard model of reflective practice. Nor, as Leathwood and Phillips note, does it lend itself to comparative judgements for decision makers.

These contrasting perspectives between quantitative performance management models designed for institutional decision makers and qualitative, context driven evaluation models based around individual academics highlight the politics of curriculum evaluation in higher education. While debates about curriculum focus on what, why and how students learn and are assessed, for institutions, including Faculties, academic plans need to focus not only on these outcomes, but on broader indications of success. These include: the extent to which curriculum is implemented as planned; the efficiency with which curriculum is implemented and the effectiveness of the curriculum.

Often debates about the value of curriculum models and innovations centre on epistemological and value considerations. The key questions for discussion are: what should be learnt, how should it be taught and who should decide? These are interesting questions which have generated considerable discussion in the literature. However, in a globally competitive environment and an increasingly market driven system, for institutions, the key issues associated with curriculum reform are broader and centre on organisational and institutional success and failure.

Curriculum and organisational change

Notwithstanding the significant external pressure to reform teaching and learning in higher education there is less research on the specific organisational factors that need to be considered in planning and implementing curriculum reform strategies. Most studies

(e.g. Walker, Sproken-Smith et al. 2010) have investigated the introduction of specific curriculum elements (e.g. assessment, teaching strategies, technologies) and their impact of the curriculum on learning styles and outcomes. Few have taken an institutional or organisational perspective that examines the strategies required to implement change or the impact of change on overall institutional performance including outcomes for students and staff.

Organisations are defined by their purpose in relation to their external environment. For example, from the perspective of the Australian Government, the primary purpose of higher education is to enhance social, economic and cultural benefit through the creation and transmission of knowledge, skills, values and attitudes. Higher education institutions are meant to realize this purpose by educating the future workforce, developing future leaders, facilitating cultural and trade links with other countries and contributing to knowledge and innovation (Australian Department of Education and Training 2016). Effectively, they transform students into graduates through education and generate new knowledge, skills, processes and products through research.

In their summary of the literature on organizational theory, Hatch and Cunliffe (2013) suggest organisations can be thought of as a set of five intersecting dimensions. First organisations have a physical and social structure. The physical structure sets out the spatial and temporal relationships or organisational processes and transactions. The social structure defines the relationships, rules and roles that govern the behaviour of the people within the organisation. In a university, this includes departments, schools, faculties and colleges; academic roles for teaching and research and the policies, procedures, sanctions and incentives that shape staff actions and behaviour.

Second organisations apply technology to achieve their purpose. Technology is the application of knowledge and power to develop specific systems and processes to achieve organisational objectives. In higher education, the curriculum defines the set of roles, procedures and rules that govern the relationships between staff and students for teaching and learning. In this sense curriculum is a technology for transforming students.

Third, organisations can be thought of as having a culture. Peterson and Spencer (1991) define organisational culture as the patterns of values, assumptions, beliefs, and ideologies members of organisation have about the organisation and its purpose, and the consequent patterns of organisational behaviour in which members engage. The embedded cognitive, attitudinal, social and behavioural patterns that make up organisational culture provide members with guidelines and justifications for action, including how to respond to organisational change.

Organisational change strategies therefore change organisational culture. They do so by changing the way members of an organisation think, act and relate to one another and their attitudes to the way the organisation operates. Embedded cognitive and attitudinal aspects of organisational culture and existing social relationships also mediate interests amongst groups within the organisation. These interests include access to, and control of information and resources, control over the organisation and conduct of activity (work), and participation in organisational decision making (Hatch and Cunliffe 2013).

Finally, the power to make decisions and change is distributed through an organisation by its structures and culture. Actors within the organisation (e.g. lecturers, professors, heads of school, Deans, Pro vice chancellors, Vice Chancellors) have formal and informal power to influence and make decisions. Organisational culture not only legitimises existing organisational practices; it also legitimises the distribution of organisational power amongst groups of stakeholders within organisations. Groups which have greater control over information, resources and activity and who have more participation in organisational decisions have greater power and status in the organisation. They in turn shape the elements of organisational culture that reinforce their position. Shared ways in which members think about the organisation, their organizational beliefs, attitudes and values, legitimise organisational norms and rules and the practices and activities they guide. In turn organisational culture, the distribution of power and the performance of the organisation is shaped by organisational structure (Hatch and Cunliffe 2013).

The shared and embedded cognitive, attitudinal and social relationships which shape organisational practice critically affect whether particular forms of change are likely to be accepted or opposed. Where change to the organisational culture significantly affects the

distribution of power and interests across groups within the organisation it is more likely to be resisted.

Kezar and Eckel (2002) have reviewed the literature on organisational change in higher education. They note that there has been a progressive shift in the use of organisational culture from a descriptive to an explanatory construct in higher education settings. In particular, they conclude that differences in organisational culture are associated with the success or failure of organisational change. For organisational change to succeed, higher education institutions need an organisational culture that supports change (Curry 1992). Often, as change is implemented, there needs to be an interactive process to modify the organisation's culture (Schein 1985).

The organisational culture of higher education is unique because of its history and purpose. Higher education institutions generate, transmit and apply knowledge. According to Bergquist (1992), they aspire to do so through some combination of collegial, managerial, developmental and advocacy cultures. Collegial cultures value disciplines, scholarly engagement, participatory governance and decision-making, and rationality. Managerial cultures focus on goals and purpose, supervision, efficiency, fiscal responsibility and performance. Developmental cultures emphasise personal and career development, service and professional growth. Advocacy cultures support equity and egalitarianism and resistance of privilege and power. Subsequently, Bergquist and Pawlak (2008) extended this original formulation to suggest that higher education institutions can also incorporate virtual cultures which emphasis knowledge generation and dissemination and tangible cultures which value face to face education in stable physical locations for particular communities.

Traditional Collegial cultures within higher education privilege the role of disciplines, professional association, debate and collegial decision-making. Collegial culture is exemplified by traditional participatory institutional forms of the university decision-making (e.g. academic boards, councils and senates), including the appointment of staff and academic leaders. Disciplines and professions with diverse perspectives on the role and purpose of teaching and research coexist within loosely coupled organisational systems to allocate resources and regulate practice. Decision making about curriculum is

devolved to individual academics and small discipline and professionally focused departments, with only broad checks through academic peer review processes. Where collegial cultures are in place within higher education institutions, it is arguable there is comparatively less accountability to other stakeholders, including students, employers and the wider community.

Organisational cultures like those proposed by Bergquist are, of course, heuristic abstractions. All six of the types suggested can be found to a greater or lesser extent in most higher education institutions. This typology is useful insofar as it guides analysis and action. In practice, the principal debate about organisational culture in higher education over the past two decades has concerned the progressive introduction of managerial cultures to replace collegial cultures.

New Public Management and higher education

During most of the last century, what Deem, Hillyard et al. (2007) refer to as 'corporatist' management dominated public sector organisations. Corporate managerialism emphasised negotiated, pluralist planning and decision making to manage conflicting interest between consumer and producer interests. The technical and structural features of administrative decision making and negotiation inherent in corporate managerialism produced a professional bureaucratic class of managers whose role was to mediate competing producer and consumer interests. Over time, this managerial class accrued power over the process of defining, delivering and evaluating services relative to the interests of service producers and consumers (Deem, Hillyard et al. 2007).

Corporate managerialism was 'an inherently unstable and uneasy blend of Keynesian economic policy; state welfarism, political pluralism, industrial tripartism, and Fordist-style management' designed to pragmatically manage the competing interests of workers, government and consumers (Deem, Hillyard et al. 2007). By the 1970s public sector institutions, including universities, were under sustained attack for their lack of accountability and transparency, inefficiency and unresponsiveness to consumer and community interests. They were seen as overly privileging professional autonomy and the interests of staff and management over those of the consumer (students) and the community (Osborne and Gaebler 1992).

The neo-liberal critique of corporate managerialism and the welfare state drew heavily on public choice theory and particularly the work of Buchanan and Tullock (1958). Public choice theory proposed that political foundations of the corporate welfare state rested on the assumption that government could determine and maximise 'general welfare' or 'social utility'. But these broad public interest goals were seen as imprecise and determined through unaccountable, opaque professionalized processes within state bureaucracies. Instead it was proposed that the State only exists to allow individuals to meet (some of) their needs through collective action. Therefore, the role of the State should be limited to coordinating collective action to meet individual preferences and not impose arbitrary determinations on what these preferences should be. The relationship between the individual and the state was seen as a contract where individuals make contributions to the State and receive benefits in exchange. Public choice theory assumes Individuals are the best judge of their own interests and the market is seen as better at allocating costs and benefits than the bureaucratic processes of government.

The corporatist welfare state was criticised for placing producer interests (professionals, experts and public servants) ahead of those of individual citizens and consumers. This is known as the principal-agent problem. Typically, this occurs when one person or entity makes decisions on behalf of another and there are potential conflicts of interest and an imbalance of information or power between the principal and the agent (Jensen and Meckling 1976). Public service agencies and professionals in a range of settings, including higher education, often embody this dilemma, leading to outcomes that protect the interests of agents (e.g. academics) rather than principals (e.g. students).

Public choice theory and principal agent theory argue that hierarchical, rule governed bureaucracies lead to inefficient and ineffective resource management and service delivery, more focused on ensuring rules are met than on achieving outcomes. For example, in their influential book, *Reinventing Government*, Osborne and Gaebler (1992, p.1) argued, in relation to the United States:

Our public schools are the worst in the developed world. Our health care system is out of control. Our courts and prisons are so over crowded that convicted felons walk free. And many of our cities and states are virtually bankrupt.

The neoliberal critique was effective in promoting government reform and in response, earlier, dominant corporatist models gave way to what has become known as New Public Management (NPM). In Australia, this became known as economic rationalism (Pussey 1991). Definitions of NPM vary. Hood (1991), who was one of the first to use the term, argues that the NPM reforms sought to drive efficiency and better outcomes in public services for consumers and citizens by (1) limiting government growth and spending, (2) privatisation and competition, (3) the use of information technology and automation, and (4) internationalisation and globalisation. Similarly, Pollitt (1995) characterises the main elements of NPM as: devolution and decentralisation; expenditure restraint; functional separation of funding, purchasing and provision of services from one another; the use of market mechanisms and competition; the introduction of performance management; a focus on customer and consumer outcomes; and the introduction of more flexible, impermanent and performance based employment.

Initially, the main focus of NPM was to shift power from the bureaucratic decision makers and professionals to consumers through the introduction of market and quasi-market mechanisms and competition, often through privatisation (Ferlie, Ashburner et al. 1996). Markets and competition were seen as a mechanism to force service providers and professionals to focus on the needs and demands of those purchasing their services - whether individual consumers, or the agents which purchased services on their behalf (Pollitt 1993).

Often the introduction of NPM was portrayed as the introduction of business techniques and entrepreneurialism to the public sector (Adams 2000, Hughes 2003). This included the breakup of large-scale public enterprises and bureaucracies and the devolution of budgetary, operational and management responsibility to more autonomous organisational units. Public sector managers were encouraged to become entrepreneurs focused on improving service efficiency and effectiveness (Barzelay 1992, Osborne and Gaebler 1992). The greater use of devolution, privatisation and market mechanisms in

combination with appropriate regulation has famously been referred to as government 'steering not rowing' by Osborne and Gaebler (1992)

The overall impact of NPM has been mixed

NPM has been widely implemented internationally across Europe, North America, some parts of Asia and Africa, and Australia and New Zealand, often at the urging of organisations like the World Bank and the OECD (Boston 1994). Its application has varied according to local history, politics and institutional context (Cheung 1997). For example, Pollitt and Summa (1997), in a study of the public sector change in four countries, found that the introduction of NPM in New Zealand and the United Kingdom was much more focused on controlling and standardizing public services, whereas in Scandinavian countries the emphasis was on modernisation and innovation. Hood (1995) has argued that despite the use of common terms and language, contemporary reforms have been 'culturally plural'. Similar conclusions have been drawn by Hesse (1997) and Common (1998). It is therefore difficult to draw overall conclusions about the international impact of NPM.

Nevertheless, it is clear that NPM has been a radical reform programme and devolution, privatisation and competition resulted in significant disruption to public sector service delivery with variable outcomes for consumers. In Australia, where the current study is set, Considine (1997) argued that introduction of the more radical privatisation, competition and restructuring initiatives of NPM have been mixed, costs have been high, and achievements small, controversial and highly disruptive. Much of the focus has been on narrow, short-term cost savings, while more significant problems associated with adapting to a post-industrial society have not been addressed by NPM as it has been applied in Australia.

Considine and Painter (1997) noted that:

Federal, State and Local Government, and their varied dependencies, have felt the full force of internal structural change and a major shift in external expectations. Everything from conditions of employment to methods of budgeting have been altered and reordered according to new principles and ideologies. Relationships between organisations have also been changed, with central agencies, in particular the finance ministries, taking a tight grip

on the throughput and output based performance systems. These transformations have taken place at the same time as significant levels of deregulation and privatisation of public services have occurred. Policy makers have also moved to reduce public spending, restrain public investment and limit taxation.

Similar conclusions are drawn by Halligan (1997) who noted that despite more than a decade of ongoing change to the public sector in the late 1990s, more changes were constantly proposed, reflecting the ongoing concern that change had been partial, disputed and costly.

In response, in Australia and elsewhere, the significant disruption to public sector services produced by the more radical application NPM was addressed by the introduction of a more technocratic managerialism (cf. Holmes and Shand 1992). This revision of NPM

strives to integrate the rationality of strategic managerial direction and localised managerial control with the reality of national and international competition within a globalised market for public service provision' (Deem, Hillyard et al. 2007).

Politically, in the United Kingdom the revision of NPM coincided with the election of the Blair Labour Government and in the United States with the election of the Clinton Administration. Much of the underlying theory for rebalancing the role of the state and market focused underpinned by the ideology of the 'third way' (Giddens 1998, Giddens 2000, Giddens 2001). Emphasis shifted to a more active state role in regulating and managing markets to ensure equitable and efficient social and environmental outcomes in an increasingly globalised environment. But one which was accountable to individuals both as service consumers and political agents participating in the design and evaluation of policies and programs.

As with neoliberalism the emphasis of the more technocratic NPM remains on outcomes for consumers and the reduction of professional and bureaucratic autonomy, but greater store is placed on the use of performance measurement, consumer choice, transparency and accountability than on the harsh realities of privatisation, markets and competition. The role of management is to ensure the aspirations of citizens and consumers are

realised. More recently, this has seen a much greater emphasis on stakeholder participation in the planning, design and review of policy and services through new forms of governance and engagement.

In the revised, more technocratic NPM, management and administrative discretion are increasingly replaced with detailed and continuous measurement and control strategies to shape organisational practices and performance. This includes the explicit specification of quantitative goals, targets and indicators and linking performance on these to financial and regulatory sanctions and rewards.

Intermediate review and regulatory agencies are established to mediate the interests of consumer by monitoring and reporting on performance on agreed metrics. Performance on these metrics has reputational, funding and regulatory consequences for organisations and individuals. In response, organisations self-regulate and self-govern to manage their performance against agreed standards and outcomes. Management becomes the task of analysing, designing adjusting and socialising organisational rules and incentives to meet externally negotiated standards and outcomes.

The impact in higher education

Returning to Bergquist and Pawlak (2008) typology, NPM has progressively become the managerial organisational culture of universities, at least in their Anglo-American manifestation. NPM is replacing the earlier collegial university culture, particularly for senior managers, although many of the forms of collegiate culture remain (e.g academic boards, senates) and many staff continue to identify with this ideal for the academic heartland (Clark 1983).

Increasingly universities are being required to take the views of employers, students and government into account in the design and delivery of courses. A range of measures, including retention and student satisfaction, are now reported and used as indicators of performance. There is greater pressure to ensure students graduate with skills required in employment. Market mechanisms are more frequently used to drive universities to

respond to workforce shortages and deficits in the knowledge and skills of graduates. As with research, universities are now required to be more strategic in the mix and design of courses they offer. There is more emphasis on analysing market conditions and preparing business cases for the introduction of new courses. Local planning mechanisms and course review processes are more evident to ensure revenue targets are met and inefficient courses and subjects are discontinued (de Boer, Enders et al. 2008, de Boer, Enders et al. 2009).

At the same time these trends coexist with more established views and allegiances to disciplines, collegiality, autonomy and disinterested scholarship. Neither has NPM been implemented consistently in higher education across jurisdictions (de Boer, Enders et al. 2008), but mimetic isomorphism (Meyer, Boli et al. 1997) has led to its widespread acceptance as a dominant narrative for institutional design - a process that has been similarly described earlier in the policy literature as 'partisan mutual adjustment' (Lindblom 1965). As Broucker, De Wit et al. (2015 p.6) suggest, NPM in higher education has become a 'transnational myth about what constitutes rational management structures for (higher education institutions)', but the actual implementation of NPM is much more varied. Different national systems emphasise different elements and objectives of NPM, including market mechanisms, budgetary reforms, accountability and performance measures, and the implementation of business oriented management organisation and style (Broucker, De Wit et al. 2015)

Most pervasively, 'management' has come to replace 'collegiality' as the dominant narrative in higher education. This tension is reflected in the burgeoning literature on the university in crisis, the perceived evils of marketization and commodification of learning and the odiousness of managerialism. They play out in the relationship between Clark (1983) senior management 'steering core' and the 'heartland' of ordinary academic staff who conduct teaching and research. Fundamentally, the application of NPM by university senior management seeks to change the way academics think, act and relate to one another and their attitudes to the way the organisation operates. In effect, it seeks to shape their identities and roles in relation to teaching, research and service.

Academic identity and organisational culture

The application of NPM to introduce new forms of curriculum organisation and teaching and learning practices is likely to collide with collegiate and developmental cultures and the values and roles academic staff value and with which they identify. There is now an emerging literature on the relationships between academic identity and organisational culture in higher education (e.g. Gordon and Whitchurch 2010). Academics identify with their institution, their school or department and their discipline to varying degrees. They develop views about appropriate practices, values and attitudes related to their academic work through the academic communities with which they interact. Teaching is central to academic work and the design and implementation of curriculum is therefore a critical influence on academic identity.

Henkel (2005: p157) argues 'identities are first and foremost shaped and reinforced in and by strong and stable communities and the social processes generated within them.' Effectively academics are socialised into these communities through their postgraduate training and early academic appointments. Their success often depends on adopting the practices, attitudes and values of the communities with which they identify. These communities are generally organised as academic disciplines.

Disciplines are characterised by their extra institutional nature. They are organised as collegial associations (communities), which span the boundaries of individual academic institutions, shaping the forms of knowledge and practice, and the processes of training and socialisation for entrance, progression and advancement. They are tribes with their own territories and rules for maintaining them (Becher 1989). The maintenance of boundaries defined by discourse, method and practice is critical to the process of discipline formation and protection.

Taylor (1989: p28) notes that this often takes on a moral dimension in that the values of the academic community define what is good or bad. Where autonomy and freedom are paramount, organisational interventions that constrain these values are likely to be

resisted. Similarly, academic communities defined by allegiance to a discipline or profession are likely to be critical of initiatives to promote interdisciplinarity.

Beyond the moral dimension the values, attitudes and practices of academic communities and the academic identities they shape and reinforce have material consequences for academics, students and other stakeholders. They are important in defining economic, social and cultural capital within higher education institutions and discipline communities. It is arguable that curriculum reform that is antithetical to the academic identities of the participants will be fiercely resisted and may be unsustainable.

But, as Henkel (2005) notes, academic identities are not fixed and immutable. They are shaped over time by external influences and policy and the tension between the steering core and the academic heartland (Clark 1983). The communal processes and organisation of disciplines as a primary determinant of academic practice are under pressure from external forces within and outside universities. Academic identities are becoming more fluid, negotiated and impermanent. A Henkel (2010:p10) argues

It seems that in the space of a few decades there have been profound changes in the way in which we think about identities in higher education workforces. Identity development has moved from being seen as a process in which visible continuities in the achievement of professional self-definition and esteem are foregrounded [to] a project or continuous process of construction, deconstruction, and reconstruction in the context of multiple and shifting collectivities and relationships... Perhaps most importantly, there has been a shift in the blurring of the knowledge boundaries between faculty and other categories of staff. While knowledge-centred endeavours still constitute the defining and driving forces of higher education institutions, the authority of academic knowledge is no longer taken for granted....

Institutional leaders, including Vice Chancellors, Deputy Vice Chancellors and Executive Deans, now have more influence over the type and mix of staff recruited, through strategic planning and performance management systems that set the parameters in which Faculties, Schools and Departments operate. Of course, the extent to which these NPM driven approaches are implemented vary. There is greater institutional autonomy in

the United Kingdom, North American and Australian systems than in Germany and France, where there is a tradition of selecting academics from a pool of those who have met the relevant qualifying criteria (Misselin, 2010). Nevertheless, the trend is for more institutionally driven rather than discipline specific recruitment decisions.

Organisational change strategies

Curriculum reform is then a particular type of organisational change. It changes the technology (processes and practices) of teaching and learning. In practice, the application of NPM for curriculum reform could include both market mechanisms to drive competition for student enrolments and more technocratic managerial techniques to improve the quality and efficiency of teaching.

In his review of market reforms in higher education Marginson (2009) distinguishes between NPM strategies to promote competition for student enrolments and the creation of fully privatised markets. He argues that NPM mechanisms to promote competition are widespread, but largely within publicly funded and regulated systems. The introduction of markets for fully privatised institutions and student funding has been much more limited. In Australia, the uncapping of student demand, the deregulation of university course offerings and the introduction of partial student fees in the public higher education system has led to a significant increase in universities competing for student enrolments. Management techniques to analyse and respond to student demand, monitor competitor behaviour and manage course performance have followed.

The application of NPM to higher education teaching has led to a much greater focus on the efficiency and effectiveness of teaching. This has seen the introduction of evidence-based learning sequences and teaching methods to improve learning outcomes and student experience; the systematic allocation of staff time and teaching facilities and performance monitoring to improve teaching efficiency and outcomes; and performance monitoring and review strategies to manage the delivery of teaching. NPM also suggests functional reorganisation around key activities such as the design and development of curriculum, the management and organisation of teaching staff, the reorganisation of facilities, the development of budget and workload management systems for resource

allocation, and the development of monitoring and performance management systems (Yates, Woelert et al. 2016, Enders and Westerheijden 2017).

The introduction of NPM strategies to reform curriculum in higher education changes organisational structures, the culture of the organisation and the values and roles with which academic staff identify. Where staff strongly identify with a more collegiate culture for their institution resistance to the narrative and strategies of NPM is likely (e.g. Lucas 2014). Where staff are unconvinced of the merits of NPM based curriculum reform, the likelihood that it will be successfully implemented is reduced. The management of change is therefore an important consideration.

There is a significant general literature on effective organisational change strategies which is relevant to higher education (Clark 2004). Widely used models like those of Kotter (1995) and Kanter (1991) emphasise the need to create a rationale for, and to recruit support for change, to create and communicate a vision, to plan and support implementation carefully to remove obstacles and create early successes and to support medium to longer sustainability once initial implementation is underway.

In effect, these models aim to change the narrative and organisational culture that shapes academic practice. They recognise and seek to counter the likely barriers to change inherent in the culture of the organisation. They advocate that a rationale for changing existing ways of thinking about the organisation has to be created and that support amongst the members of the organisation for a new way of thinking about the organisation has to be recruited if change is to be successful. This is done through the presentation of information and analyses of emerging problems and issues, engaging staff in discussion of options for resolving them and putting in place organisational structures and processes to support change that is agreed and endorsed. While it is debatable that it is possible to apply these 'step and stage' models in the precise sequences in which they are specified, they provide a useful heuristic for designing change processes.

In practice change is usually more unpredictable and more complicated to implement than simple 'step and stage' models. By (2005) argues that change is 'ever-present' and increasing, but often ad hoc and reactive. Perhaps 70% of changes programmes fail (By

2005). Moreover, it is arguable that organisational change is only likely to be sustained over time if the key elements of organisational culture are aligned with and supported by the social relationships which control information, resources and access to the important decision making processes within the organisation. There is a considerable literature which indicates where this does not occur, organisational change is likely to fail (Hatch and Cunliffe 2013, Burke 2014).

It is then arguable, that the participation and support of academic staff in curriculum change are critical to successful curriculum reform. But, increasingly the application of managerialist principles to curriculum reform is likely to constrain autonomy and self-regulation and drive their resistance to change. There are also concerns that significant additional resources are required to implement major curriculum change and that additional work will fall on academic staff with potential negative effects on research productivity. Unsurprisingly, there are a number of examples where the application of NPM strategies has led resistance by academic staff (Lucas 2014, Broucker, De Wit et al. 2015). As a result, the successful management of curriculum change processes which balance the interests of the 'academic heartland' (Clark 1983) with the emerging pressures of competition and external regulation of quality and standards will be critical to the institutional success where NPM strategies are implemented for curriculum reform.

Summary and conclusions

In this chapter, it has been argued that the organisational culture of higher education institutions, which includes the patterns of values, assumptions, beliefs, and ideologies members of organisation have about the organisation and its purpose, and the consequent patterns of organisational behaviour in which members engage, is under significant pressure to change. Governments and other external stakeholders have demanded greater accountability in the interests of citizens and consumers. Progressively, this has seen the introduction of New Public Management (NPM) into higher education.

Greater accountability to external stakeholders has been driven by the introduction of performance measurement, external regulation, competition amongst providers and greater choice of course and institution for students. Specific measures include student

based funding, national student ratings of teaching and learning outcomes, graduate outcome surveys, national course quality standards and regulatory frameworks and external assessment of research quality.

In response to external pressure, senior managers within higher education institutions (the institutional steering core) have progressively sought to introduce a discourse and a set of practices based on NPM to inculcate and embed transparency, accountability and performance improvement within the organisational culture of higher education institutions. This has seen the widespread introduction of measures of teaching quality, satisfaction, responsiveness, equity and effectiveness. Similarly, performance measures on research income, quality and impact have been developed. These are increasingly tied to evaluation of performance for individuals and organisational units including departments, schools and faculties, and the consequent allocation of resources based on these metrics to drive performance improvement.

The introduction of NPM in higher education institutions has a significant impact on the earlier collegial culture which emphasises the importance of autonomy over academic work within discipline and professionally organised communities. For collegial culture, the structures and processes of higher education (departments, faculties, academic boards, senates and so on) were designed to facilitate a loosely coupled organisation to allocate resources and to manage self-regulatory processes for the appointment and promotion of staff and the development and evaluation of courses and programmes within discipline communities. It has been argued that the new discourse and practices of NPM coexist within higher education institutions as an uneasy and unstable hybrid culture. As a result, academic identities are in a state of transition and flux and there is a significant debate about the future of the organisation and culture of higher education institutions.

Notwithstanding the uncertainty inherent in the current hybrid of competing cultures within higher education institutions, it is clear that NPM will be increasingly applied to teaching and learning. Higher education institutions plan their teaching and learning practices and activities for particular courses programmes through their curriculum. Therefore, there is likely to be increasing emphasis on the review and reform of curriculum in higher education to adapt to the requirements of NPM.

The literature on curriculum models for higher education focuses on what students should learn, why they should learn it, how they learn and the methods to examine whether they have done so. Models suggest a set of principles for curriculum design in higher education which optimise the learning outcomes, attributes and capabilities for individual students. These include a focus on capabilities and attributes and seeing students as active participants in the learning process. For health sciences, in general, the research suggests that enquiry and problem based learning models of curriculum are more effective than traditional teaching, although they have been more widely applied to medical training than for other health sciences.

Overall, while there is considerable discussion of the principles underpinning the development of curriculum in higher education, the empirical research is comparatively limited. This thesis is primarily concerned with curriculum reform in health sciences. Studies of curriculum reform in health sciences focus on comparing the impact of traditional and enquiry based learning on student and staff perceptions and performance on standardized examination tasks (eg. external exams). There is only a limited focus on organisational research and curriculum reform. In particular, despite its burgeoning application by senior management, little is known about the specific impact of the discourse and practices of NPM for curriculum reform on the culture of higher education.

On the other hand, there is a significant evaluation literature which is applicable to the investigation of the impact the discourse and practice of NPM has on curriculum design, planning and implementation. Evaluation models suggest a focus on the process, outcomes and efficiency of curriculum reform strategies. They also suggests that the perceptions and participation of key stakeholders, such as staff and students are a critical component of the evaluation process to assess the sustainability of organisational interventions.

The literature on curriculum models has been less concerned with the organisational and institutional management of curriculum planning, implementation and reform within higher education institutions, or the impact of new managerialist approaches on these processes. The new managerialism in higher education suggests that students, staff,

facilities and other resources should be organised as efficiently as possible through teaching and learning processes so that students satisfactorily complete modules and courses to acquire specific attributes and capabilities which have value in their application for individual graduates, their employers and the community more broadly. Whether or not curriculum reform is successful from an institutional stand point requires a broader appreciation of the application of organisational change processes in higher education.

The organisational change literature suggests that the implementation of NPM in higher education institutions is likely to produce resistance and conflict when an embedded collegial culture is threatened. The literature suggests it is important to create a rationale for a new discourse for curriculum planning and implementation and to recruit support amongst key staff to support change in the practices implied by the application of NPM to curriculum. Organisational change to create a new discourse and support changed organisational behaviour and practices is seen as requiring a sustained effort of communication, the creation of incentives and sanctions, the encouragement of support and participation by staff, the celebration and reinforcement of successful implementation and the removal of obstacles and barriers.

Research statement

This research investigates the impact of a curriculum reform strategy designed to meet external changes confronting the Faculty of Health Sciences at La Trobe University on student attrition and progression, student satisfaction, teaching efficiency and staff perceptions of their role and the process of change. It is an intervention study and the intent was therefore both to inform my own practice as a manager in implementing a significant organisational change programme and to more broadly inform the literature on the organisational change and curriculum reform in higher education.

The aim of the curriculum reform strategy was to put in place efficient high quality educational programmes that ensured health science graduates would be well prepared to enter professional practice. I was interested in the extent to which the intervention was actually implemented, its impact on the efficiency and effectiveness of teaching, the extent to which change was supported by staff and their perceptions of the impact reforms had on their academic role.

The curriculum reforms, which are the focus of this intervention, were designed to meet both a set of external changes in Australian higher education and a set of issues within the Faculty of Health Sciences which had accumulated over time. A systematic approach was adopted to analyse the context, identify issues and problems and to generate potential solutions for addressing them.

The curriculum reform strategy which is the focus of this study, was effectively the intervention plan generated from the contextual analysis. The reform strategy was operationalized as a project with associated plans, timelines, resource requirements, accountabilities and management and reporting relationships. The project plan for the strategy was subjected to extensive testing, scrutiny, revision and adjustment during the design and consultation phase of the reform strategy.

The strategy incorporated a number of elements of NPM, including the reduction of unnecessary and unplanned variations in resource allocation to teaching subjects, the application of empirical evidence for curriculum design, the introduction of learning objectives based on the desired graduate attributes for courses, an increased focus on performance measurement and reporting, and the introduction of systematic, annual course and subject peer review processes to improve teaching and learning performance.

The literature suggested that the changed discourse and practices associated with a more managerial approach to curriculum would disrupt the existing, more collegiate, autonomous and unregulated organisational culture of the Faculty and that this would lead to resistance and dissatisfaction amongst the staff. An organisational change process was therefore developed to gain support for the proposed reforms and ensure they were successfully implemented.

Research questions

There were three key questions for the process evaluation of this study:

(1) Was the reform strategy implemented as planned and did it lead to the desired changes in efficiency and effectiveness of teaching?

(2) Did the academic staff support the key elements of the reform strategy once it had been implemented?

(3) Did the academic staff consider that there had been a loss to autonomy and professional identity as a result of the introduction of the curriculum reforms?

The intention was that the curriculum reform strategy would be implemented as planned and that there would be support for key elements of elements of the reform strategy. Although, it was considered likely that, initially, academic staff would be concerned about the impact of curriculum reform on their autonomy and identity, once the reforms had been successfully implemented, it was expected staff would be satisfied with their academic role and identity.

The intended product or outcome of the curriculum reform process was that there would be a significant improvement in teaching efficiency, while at the same time student satisfaction with teaching and learning and student progression would be maintained and enhanced. Additionally, the reforms were intended to ensure that barriers to increased growth in student load (enrolments) associated with limitations in the availability of clinical placements were removed, but this aim was not the principle focus of the current study.

The research questions were explored through a case study of the introduction of curriculum reform in the Faculty of Health Science at La Trobe University. The findings of the case study are discussed in relation to each of the research questions. The limitations of the research are reviewed, and the implications for the Faculty and the broader literature on curriculum reform in higher education are considered in the concluding chapter of the thesis.

Chapter 3: Methods

This chapter reviews approaches to the evaluation of curriculum reforms in higher education settings. It describes the framework for data collection and measurement and ethical issues that were considered in designing the research.

Approaches to education research

Educational research design is a fiercely contested space (Badley 2003). At one polar extreme positivists argue for an objective, underlying reality or truth which is discovered empirically through rigorous experimental methods designed to falsify theoretically derived hypotheses. Science progresses systematically and impersonally, building on past research findings. Designs seek to ensure that valid logical inferences about causality can be drawn (internal validity) and that findings are appropriately generalised to specific settings and populations (external validity). There is a strong preference for precisely defined measurement which is amenable to quantitative analysis to explain the variation observed in results. The greater the variance explained by the dependent and independent (experimental or predictive) variables employed, the more certain it is that inferences and generalisations can be employed to guide policy and practice.

For positivists, in an imperfect world, the practice of research design is to find strategies to improve the reliability of measurement, to minimise the extent to which extraneous and uncontrolled variables affect the capacity to draw logical inferences about causality, and to ensure sufficiently large and representative sampling of populations and settings so appropriate and precise generalisations and predictions can be made. A range of experimental, quasi experimental and correlational designs have been developed to address the constraints placed on the research by practical realities (Cook and Campbell 1990).

Positivists have been heavily criticised by relativists and constructivists who argue that there are no absolute, underlying truths, that inferences about reality are always contextualised to a particular time and place, and that knowledge is value laden and constructed through subjective processes no matter how rigorous the scientific

procedures which are put in place. For relativists, generalisations always flow from the specific to the general, rather than the other way around, and the application of knowledge in other settings always requires adaptation and interpretation. At the extreme, relativists argue there are multiple realities across different actors and settings, each with intrinsically important perspectives which should be explored and analysed for their implications (Guba and Lincoln 1994).

Constructivists and relativists prefer qualitative methods, heavily focused on the concepts and language participants in research settings use to describe and explain the research issues of interest (see Guba and Lincoln 1994). The intention is to understand the perceptions and explanations of reality from the point of view of the participants to draw out commonalities and themes which can be used to theorise what is happening in specific settings and contexts. The researcher, as interviewer, observer and participant, becomes the research instrument. As such, researchers position and analyse themselves as part of the research process. They try to uncover the impact they have on the participants and their perspectives, values and biases to ensure plausible and legitimate inferences and interpretations are reached, often through a process of generating consensus and agreement about the inferences which are drawn.

More thoughtful positivists - a group Guba and Lincoln refer to as 'postpositivists' - will agree that science and research are never value free and that research designs and methods developed for one set of purposes (say the development of new treatments for osteoporosis) may not transfer well to another (say the study of an educational organisation). Nevertheless, it is also clear that some explanations, however relative and partial, are 'better' than others. They are more accepted, better predict what happens and are more useful in designing strategies to achieve desirable outcomes than others. Not all narratives and conclusions are equally useful, plausible or valid. While it is arguable that research is unlikely to uncover absolute and eternal truths, it should attempt to sort the wheat from the chaff, however context dependent (Guba and Lincoln 1994, By 2005).

Over time a more pragmatic approach to the choice of methods and designs has emerged to bridge the gulf between the quantitatively focused positivists and the qualitative

preferences of the relativists. These have come to be known as mixed methods or mixed model designs (Johnson and Onwuegbuzie 2004).

Mixed methods designs combine multiple methodologies to address a research question. Mixed methods approaches either combine complementary techniques to address the same question or a set of related questions. Where different methods are used to investigate the same question or issue it is possible to 'triangulate' the results. Triangulation combines different methodological perspectives to provide both greater plausibility for the conclusions and generalisations drawn from the findings and a richer appreciation of the findings, particularly when qualitative and quantitative strategies are combined.

In educational research, pragmatists argue against the false dualism between positivist and constructivist positions. Instead they prefer to combine qualitative and quantitative methods for theory generation and confirmation. They reject the often privileged and dominant position given to positivist, quantitative methods for the development of policy and practice. Similarly, they take a more provisional and less prescriptive view on the application of findings across time, populations and settings, preferring to argue that application requires negotiation, interpretation and ongoing research and adaptation as implementation occurs (Badley 2003, Johnson and Onwuegbuzie 2004). While pragmatists see research as important and useful, they do not see it as settling educational and organisational issues for all time and all circumstances. Research and application is a continual, ongoing process. For those responsible for leading, developing and managing organisations this is closer to what Peter Senge calls a 'learning organisation' (Senge 2000).

Mixed methods designs for educational research fit with the approach which has become known as 'mode 2' research (Gibbons, Limoges et al. 1994). Mode 2 research is focused on applied, contextualised, interdisciplinary problems in contrast to mode 1 research which is interested in basic, discipline focused problems. For social and organisational research, mode 2 is commonly associated with programme evaluation research. Evaluation research generally incorporates mixed methods designs to determine the impact of particular forms of intervention (e.g. organisational change strategies).

Critical to evaluation research is the idea that social and organisational interventions usually have an underlying logic (Cooksy, Gill et al. 2001). Most commonly rational models of intervention assume that a set of processes (e.g. curriculum reforms) will influence a set of outcomes (e.g. student progression, satisfaction, attrition and so on). Evaluations then seek to determine whether interventions have been implemented as planned, the impact of implementation on planned (and unplanned) outcomes and the costs and benefits of the changes that are observed from the perspectives of the various stakeholders involved (e.g. staff, students, administrators).

The current study

The current study is positioned as an applied intervention study, which adopts a pragmatic epistemology consistent with the mode 2 research framework. It is a case study of a health science curriculum reform between 2009 and 2011 in an Australian university.

It adopts a mixed methods design to explore the extent to which an organisational intervention in the Faculty of Health Sciences at La Trobe University produced sustainable improvement in the efficiency and effectiveness of teaching and student learning. The study is interested in both the extent to which the intended outcomes were achieved and the factors which influenced the outcomes.

Case study designs

Case study research is defined by its focus on a defined setting, context and time-period which is studied in depth from multiple perspectives. They are 'bounded' phenomena which are defined for the purpose of making observations which have relevance both for the particular case in question and more broadly for similar cases in other settings and contexts (Bennett 2004, Yin 2014). In educational research, individuals, classes and schools have commonly been defined as case study units. In higher education there are examples of case studies of departments, schools, faculties and universities. In this case the setting is the Faculty of Health Sciences at La Trobe University from 2008 to 2011 as a curriculum reform strategy was developed and implemented for the Faculty's major undergraduate degree programmes.

Case study research is a contested space. It is often conflated with qualitative research, focusing on process tracing (Bennett 2004), ethnography, participant observation (Yin 2014), or single case designs (Campbell and Stanley 1963). Qualitative methods are not used exclusively in case studies and case studies often involve more than a single individual (which is how Campbell and Stanley use the term).

More usefully, the unique feature of case studies is that they study a single instance in order to generalize to a broader set of circumstances (Gerring 2004). Instances can vary from individuals to organisations, communities, regions and countries. The usefulness of a case study depends both on the methods used to study the specific instance or case and the extent to which the particular case is similar to other cases. Where the study methods used are valid and the case chosen has characteristics that can be generalised to other settings, case studies can contribute to the broader understanding of the phenomena being investigated.

How validity and generalizability are seen varies, depending on the methodological framework adopted. For positivists and post positivists, it is dependent on the application of inductive and deductive models of causality. Validity defines whether causal inferences can reasonably be drawn from the observations that are made. Generalizability defines the extent to which inferences can be applied beyond the specific circumstances of the study in question. The purpose of research is to generate more valid theories to explain objectively observed phenomena.

For constructivists and critical theorists, validity is more problematic. The purpose of research is not to reveal underlying, objective truth. It is to understand how meaning is constructed in different cultural and social settings and how these constructions affect the way settings develop and change. Validity is more about the credibility of the observations and interpretations that are made. Credibility focuses on the use of replicable methods to demonstrate the results are believable, particularly for the research participants. This includes triangulating results by using different methods to collect data and check findings across different observers (Guba and Lincoln 1994).

Case studies can be used for variety of different types of research, including both theory generation and theory testing. This case study was designed to investigate the specific questions outlined in the research statement. The table below describes the interrelationships between the key foci used to evaluate the introduction of the curriculum reform model and the data sources used over time to answer these questions.

Table 1: Data sources

Key Variable	2008	2009	2010	2011
<i>Implementation and adherence with curriculum model</i>	Administrative records (e.g. minutes, papers)	Administrative records (e.g. minutes, papers)	Administrative records (e.g. minutes, papers)	Staff review of course documentation and practices
<i>Teaching efficiency</i>	Administrative data on subject delivery		Administrative data on subject delivery	
<i>Student satisfaction with teaching and learning</i>		Student feedback on first year subjects		Student feedback on first, second and third year subjects
<i>Learning effectiveness</i>	Student progression rates	Student progression rates		
<i>Staff perceptions of curriculum change</i>				Staff survey

The following subsections describe how information for implementation and adherence, teaching efficiency, student satisfaction, learning effectiveness and staff perceptions was developed and collected.

Implementation and adherence

A key element of the curriculum reform process was the extent to which the Enquiry Based Learning (EBL)⁴ teaching model was implemented as planned. At the time this study was completed, the curriculum reform strategy was in its third year of implementation. Years one and two had been completed and it was therefore appropriate to assess the extent to which EBL had been implemented as planned for these years. The extent of adherence to EBL in the actual implementation of the curriculum was evaluated by reviewing seven common first year subjects and 18 second year subjects. For each subject,

⁴ A description of the Faculty EBL model can be found at appendix 2

coordinators were asked to rate the extent to which curriculum documents, teaching and learning methods, assessment and staff competencies were consistent with the EBL on a four-point scale, where 1 indicated a low level and 4 a high level of EBL implementation. Coordinators were provided with EBL implementation indicators for each category.

Low levels of EBL implementation indicated that traditional, didactic teaching was the dominant mode of transmitting information to students. In this mode, students were required to acquire knowledge and reproduce it on tasks such as exams. They generally worked independently rather than in teams and the responsibility for framing questions and problems rested with teachers rather than students. Learning problems and issues were generally relatively simple and straightforward with one right answer. The emphasis was on memorisation and description rather than analysis and evaluation and students were reliant on the teachers' instructions for most of their work in class.

For subjects rated as high on EBL implementation tasks were established and facilitated by teachers, but students pursued their own lines of enquiry and problem solving. They sought evidence to support their ideas and took responsibility for analysing and presenting them appropriately. There was an emphasis on critiquing and applying ideas, concepts and knowledge, rather than simply memorising information. Team work was routinely taught and assessed. Problems and tasks were complex with more than one valid solution, reflecting a more 'real-life' environment. The emphasis was on evaluation and analysis rather than description. Students self-directed their learning most of the time, with teachers facilitating and assisting when needed.

Faculty curriculum development staff consulted with and explained the rating scale and the process to subject coordinators who then conducted the EBL rating of their subject. Once subject coordinators had completed their ratings, their scores were independently verified and moderated by Faculty curriculum development staff to provide a mean rating for each subject.

Teaching efficiency

Teaching efficiency can be measured in a variety of ways. Most comprehensively, an analysis of allocative efficiency would require a full cost benefit analysis which estimates the monetary value of inputs (e.g. staff time, facilities, administrative overheads) required

to deliver teaching to students and the value of the learning outcomes (e.g. employment, improved quality of life) which students acquire as a result of the teaching. There are several technical difficulties in conducting investigations of allocative efficiency. A full analysis requires detailed cost information on all inputs and quantification of the value of all outcomes in the same metric. However, educational outcomes are notoriously difficult to value because they have both tangible and intangible qualities. An analysis of allocative efficiency was beyond the resources and time available for this study.

Alternatively, the technical efficiency of teaching can be evaluated. Technical efficiency requires that inputs can be costed (e.g. staff time, facilities, administrative overheads) and related to a unit of output (e.g. graduates produced, students who progress through a year level). Inputs can be further defined as having fixed and variable costs. Fixed costs are those which do not vary significantly because of changes in the level of activity. In a university setting this would typically include the facilities, buildings, administrative staff and overheads. Variable costs are the academic, professional and technical staff directly required for teaching. All other things being equal, greater numbers of students require more direct teaching staff.

The costs of facilities (e.g. buildings, rooms, equipment, libraries, laboratories), administrative costs (e.g. senior staff, administrative staff, support staff) and overheads (e.g. student placement costs, utility costs) only change with significant variations in student load. Overhead and facility costs are more difficult to manage with small changes in student load and in practice student load varies only marginally from year to year. Variations in the way teaching is organised and delivered has the most impact on direct costs of teaching through its impact on academic staff time.

In this case study, academic staff time per student for each subject taught was used as the main indicator of technical efficiency. It is arguable that academic staff time per graduate would be a better measure, but in the Australian higher education funding system, universities generate revenue based on the number of students (EFTSL) enrolled each year, not on the basis of the number of students who graduate. Technical efficiency was therefore linked to annual student load, not to graduations.

The technical efficiency of the changes introduced through the curriculum reform strategy were investigated by comparing staff workloads required to conduct the first year of the new curriculum before and after its implementation. The new first year was one of the most important elements of the curriculum changes. The new first year curriculum was implemented for the first time 2009. Data on the subject organisation, student load and staff workloads for 2008, the year prior to implementation, were compared to the same data for 2010, the second full year of operation for the new first year curriculum. The second year of implementation was used as the comparator to allow the costs to stabilize.

Workloads for subjects varied in accordance with the teaching pattern for a subject. Each full-time year of a course comprised 120 credit points. Generally, each year had eight 15 credit point subjects. The Faculty guidelines introduced as part of the curriculum reform process indicated that students should engage in between 12 to 15 hours of work per credit point, or between 1440 and 1800 of work per year.

The Faculty subject guidelines specified that 15 credit point theory/knowledge oriented subjects should have no more than 39 hours of class contact for each student. These were usually made up of a combination of small group tutorials, seminars and lectures. For each hour of class contact it was expected that students would engage in about three to four hours of self-directed learning and assessment preparation, either individually or in study groups to make up the total student workload per credit point.

For laboratory based subjects, including preclinical simulation laboratories, subjects were required to have no more than 52 hours of class contact, comprising lectures, seminars, workshops, simulations and tutorials. For each hour of class contact it was expected that students would engage in about two to three hours of self-direct learning and assessment preparation in groups or individually.

Many health sciences students also undertook clinical or professional placements in health and human services settings. Students observed and gained professional and clinical experience, skills and knowledge through these placements. Placement subjects varied in their credit point load. However, for a 15-credit point subject, the guidelines indicated that students should engage in 20 days or 140 hours of professional or clinical

placement activities. Placement subjects assumed that students have 30% of their time for individual self-direct learning and assessment preparation.

La Trobe University had a staff workload model⁵ which translated teaching activities such as lecturing, tutoring, assessment and subject coordination into staff time. The Faculty and university workload guidelines recognised 1645 hours per annum as the maximum annual allocated hours for a full time academic staff member. Although variations were possible, 40% of this time was allocated for teaching, 40% for research and 20% for service and professional development. Teaching allocations were primarily based on course and subject coordination, teaching contact hours with students, assessment, student support and supervision.

To evaluate the efficiency of the Faculty teaching programme, the university's workload allocation methodology was applied to the teaching patterns and student numbers in each of the subjects in first year for 2008 and 2010 to calculate the staff workload required to teach the curriculum. Workloads were further differentiated by different modes of teaching (lecture/seminar and tutorial group) and coordination activities to understand the factors which have led to changes before and after the introduction of the new first year curriculum. The analysis was standardised to take account of changes in student load. Staff workloads were converted to Full Time Equivalent (FTE) staffing levels as the basis for calculating efficiency savings in monetary terms (average salary plus on costs).

The methodology for assessing efficiency had advantages and disadvantages. An alternative approach would have been to use an activity based costing methodology (Kaplan and Anderson 2003). This would have produced more accurate data on actual time allocation by staff. However, doing so would have been very resource and time intensive and activity based costing methods also have limitations in the accuracy of the data which is produced. More importantly, resource allocation and budget planning and development for the Faculty and the university was framed by the workload allocation model.

⁵ See appendix 1

Learning effectiveness

The principal indicators of learning effectiveness which were used for this study were student attrition and progression. Attrition is defined as the percentage of students enrolled in one year who are not enrolled in any course at the University in the following year. For the purposes of attrition, year levels were determined by the number of credit points the students has passed. Progression is the percentage of equivalent full time students (EFTSL) enrolled who pass a subject in each year level. These were standard definitions used for statistical purposes in the Australian higher education sector.

Data for attrition and success were routinely collected by the university and were available for enrolled EFTSL at Department level. Most Health Sciences Departments only had one major undergraduate course. Consequently, it was possible to use these data to analyse learning effectiveness at the course and discipline level. Data were generated by course and year level for 2008 and 2009. This allowed a pre- and post-comparison of the introduction of the new curriculum model.

Clearly these data are only a limited indicator of learning effectiveness. Progression through the curriculum is determined by whether or not students meet the assessment criteria for subjects and the extent they remain committed and interested in their course. Attrition and progression do not measure the adequacy of the learning objectives or the extent to which students are well prepared for vocational and other outcomes when they graduate. There was insufficient time and resources to fully investigate these issues as part of this study.

Student satisfaction

Students provide feedback on all subjects taught at the university on a biannual (semester) basis. Students provide feedback on the teaching delivery, objectives and content, organisation, workload, learning outcomes and the perceived interest and value of the subject on 5 point Likert items which can be used to form reliable and valid scale scores.

Trend data on the Student Feedback on Subject Unit (SFSU) questionnaire was available in a comparable form for all subjects in the first year of the new curriculum for 2009 and

2011. This allowed comparisons between subjects and comparisons between the first and third year of the introduction of the new curriculum.

There are limits with these standard student feedback measures. Most notably, students are limited by the questions that are provided, response rates are sometimes low and survey measures provide only surface indicators of student perceptions of the quality of the subjects they are undertaking. Qualitative methods, such as focus groups would have provided richer data, but resources were not available to implement them for this case study.

Staff perceptions

A survey of staff perceptions of the curriculum change process was constructed⁶. The survey assessed staff attitudes toward teaching and research, staff support for the key elements of the curriculum changes which have been introduced and the extent of support for the implementation process that underpinned the introduction of the new curriculum. It provided staff with an opportunity to rate the extent to which they perceived their identity and role has changed as a result of these changes. Rating scales were scored on a five point Likert scale.

The survey collected information on staff demographics, including age, sex, gender, qualification levels, discipline and school affiliation, employment status (part time/full time), their role at the university and their time of service. Staff also had the opportunity to provide qualitative comments on the new curriculum, the change process and changes to their role and identity.

I developed the survey in consultation with the Faculty teaching and learning team. They then pilot tested the questions with staff. The survey was administered online and managed by the Faculty teaching and learning evaluator. The survey content, administration methodology and analysis was approved by an independent university ethics committee.

⁶ See appendix 3

My role as a participant observer

I was of course a participant in the process of designing and implementing the curriculum reforms for the Faculty of Health Sciences and my role in the process was significant. My observations as a participant were an important source of information for this study.

Participant observation, as a research method has a long history, principally grounded in ethnographic and anthropological research (DeWalt and DeWalt 2002). As a method, its main aim is to provide a holistic appreciation of the phenomena being studied within the limits of the observation methods adopted. The advantage of participant observation is that it provides a more integrated and complete understanding of the context and culture of the organisational setting which is being studied thereby allowing more valid and reliable inferences from the data. Consistent with a multi method stance, De Walt and De Walt suggest participant observation is best used in combination of other data collection methods including surveys, document analysis and questionnaires.

The stance of the observer is a key factor in participant observation. My position was closest to what Kawulich (2005) refers to as the 'complete participant', which is to say I was an active participant in the process of curriculum reform, rather than a passive observer. She notes there are disadvantages with this stance. For active participants, the role of participant and observer may conflict, particularly as participants in part shape the observations they make. It can be both more difficult to accurately observe, and to draw disinterested inferences and conclusions from observations. Participants are also limited in the situations and events they observe. Observations are therefore only a partial reflection the events and actions under study. It is also true that it is not normally the role of participants such as the Dean of a Faculty to be a researcher and a systematic observer. In these circumstances relationships with other participants may be affected. These are important issues.

I took steps to minimise these problems in conducting the case study. I had approval for from the Vice Chancellor to undertake the DBA program and to use the evaluation of the Faculty curriculum reforms as the basis for my dissertation. The quantitative data for student satisfaction and attrition/progression were collected administratively and it is unlikely that my role as Dean would have influenced the results in anyway. The review of

the implementation of the new curriculum was conducted independently by the Faculty teaching and learning team. As outlined above, I kept at arms-length from administration of the staff survey and that part of the case study was approved by an independent university ethics committee which did not report to me.

An on-going evaluation of the curriculum reforms was a key element of the reform process and I, as Dean, led the evaluation. The information collated and presented in this thesis would have been collected anyway as part of the evaluation. Regular reports and reflections on evaluation findings and their implications for the implementation of the reforms were part of the management process of the Faculty. It was therefore clear to all participants in the curriculum reform process that not only was I an active participant, but I was also a key player in evaluating the process and the outcomes of the curriculum reforms.

My interpretations and conclusions in this thesis reflect the outcomes of the evaluation of the curriculum reforms conducted within the Faculty. As a check and a balance to ensure accuracy and validity, the full thesis was read by two former senior staff of the Faculty who were participants in the curriculum reforms but no longer reported to me. They provided comments on my description, interpretations and conclusions about the curriculum reform strategy which I took account of in the finalisation of the thesis.

Of course, my observations as a participant had a direct bearing on adaptations and modifications to the reform process, which were made from time to time. My observations were part of the evaluation process, but critically they were not the only source of information on which inferences and conclusions are based. As De Walt and De Walt (2002) advocate this thesis incorporates a multi method approach. Other data sources, including administrative and survey data and the systematic observations and ratings of other participants were a feature of the case study. As noted above, this constitutes a pragmatic approach which combines qualitative and quantitative methods to generate inferences and conclusions.

Choices about what to observe and evaluate also have to be made. There are several approaches to the focus of observations, these include descriptive observation where

'anything and everything' is observed and recorded and selective and focused observations which are designed to explore specific issues and questions (Kawulich 2005). Consistent with the key questions for research outlined above, the focus of the qualitative and quantitative observations was on the extent to which the curriculum reforms had been implemented, the factors which affected implementation (including staff perceptions), and impact of the reforms on student satisfaction with teaching and learning and their progression through the curriculum. The impact of the changes on the efficiency and effectiveness of student learning and student satisfaction were key indicators of success for the university. The extent to which the changes affected staff perceptions of their role and identity were more important for understanding why curriculum change might succeed or fail to be implemented.

Part II

The Case Study

Chapter 4: Organisational context

This chapter sets out the organisational context for this study. It describes La Trobe University within the context of the Australian higher education sector and the Faculty of Health Sciences at La Trobe.

La Trobe University

La Trobe University was founded with 552 students in 1967 as Victoria's third university. The University was named after Charles La Trobe the first superintendent of the Port Phillip District and the first Governor of the new colony of Victoria. The University was founded as an innovative institution, with Schools rather than Faculties and a collegiate emphasis with a significant student body living on a bushland campus. The University also emphasised more egalitarian alternative pathways to university study. It was the first university in Australia to offer mature aged entry. The University developed a commitment to alternative entry pathways for students and it has consistently had a comparatively high proportion of students who are the first in their family to study at university (La Trobe University 2016).

The University is governed by an Act of the Victorian parliament. It has a governing Council chaired by the Chancellor. The University is responsible to the Victorian Government for its operation. But in practice the overwhelming majority of its funding comes from the Commonwealth Government and the Commonwealth has a significant say over the direction of the University through its funding compact and its management of demand driven funding for universities (Parliament of Victoria 2009).

During its first two decades, the University focused almost exclusively on arts and sciences. However, after the introduction of the Dawkin's reforms (Dawkins 1988) and the dissolution of the CAE sector, La Trobe developed a greater focus on professional education with the integration of the Lincoln Institute of Health Sciences into the University, first as the Lincoln School of Health Sciences in 1988 and then as one of the new Faculties of the University.

Similarly, the University amalgamated with the Bendigo College of Advanced Education (BCAE) in 1991. The BCAE was established as the School of Mines in 1873 and there was strong community support for retaining the College as a separate organisation. Amalgamation with La Trobe only proceeded after a significant period of negotiation and consultation. Notwithstanding the eventual decision to proceed, there remained significant opposition to the proposal.

The University also incorporated the Wodonga Institute of Tertiary Education in 1991. In 2012 La Trobe had campuses at Mildura, Shepparton, Albury Wodonga, Bendigo, Bundoora and in the centre of Melbourne. It was the largest provider of regional higher education in Victoria. There were five Faculties: Business, Economics and Law; Education; Health Sciences; Humanities and Social Sciences, and Science, Technology and Engineering.

In 2012, the University had 33,726 students and 3138 staff. It had an annual budget of \$625 million. The majority of the revenue earned by the University was from teaching with \$44 million coming from research funding (La Trobe University 2013).

Position in relation to other universities

La Trobe University was a medium size multicampus university. It had 12% of the first preference student demand for the State of Victoria in 2012 and was the 5th most popular university out of nine universities based in the State. La Trobe was addressing the challenges of the emerging higher education environment in teaching and learning by introducing a redevelopment programme for its approach to learning and teaching and a more systematic approach to course and load planning.

Curriculum development at La Trobe

In 2008 La Trobe University initiated a curriculum review and renewal process which became known as Design for Learning (DfL) (La Trobe University 2009). The purpose of the DfL programme was

To make explicit the distinctive qualities of La Trobe's undergraduate programmes and the students who graduate from them, and to allow us to communicate these

qualities to students, staff, tax-payers, governments, employers, families and the wider community.

The programme was introduced through a process of widespread discussion and consultation on a discussion paper which led to the adoption of a final DfL policy. It was agreed that the university would offer generalist, specialist and professional undergraduate degrees and postgraduate course work and research degrees. In keeping with the university's history, the proposed curriculum renewal process placed a heavy emphasis on the development of a collegiate, egalitarian learning community. It was proposed that curriculum design and development would be heavily based on evaluation, evidence and review in faculties and schools supported by a University wide approach to curriculum design and staff development aligned with appropriate organisational processes and incentives. The DfL programme was supported with considerable investment in specialist staffing, staff development and the redevelopment of teaching infrastructure such as the library.

A key part of the DfL programme was to adopt a general set of graduate capabilities which were to be appropriately defined across degree programmes. Students were to be assessed against agreed standards for writing, speaking, inquiry/research, critical thinking, creative problem solving and team work. These were supplemented by explicit, discipline or field dependent learning outcomes defined at appropriately high standards of achievement. Learning outcomes were to be mapped across constituent subjects within a course.

DfL introduced a framework of 'cornerstone' and 'capstone' subjects and a mid-programme assessment against graduate capabilities in each course. The cornerstone subjects were intended to identify students at risk and provide support early in a course. Capstone subjects were intended to 'provide an effective culmination point for programmes and offer students orientation to opportunities for further study, employment and career development'. Mid-point assessment was intended to provide formative feedback to improve curriculum and learning processes and student learning.

A values base was also introduced as part of the curriculum renewal process. In particular, DfL proposed that courses provide opportunities to educate students about the challenges of climate change, globalisation and inequality and how these phenomena might affect students personally and professionally. Similarly, Faculties were encouraged to provide appropriate ways of educating students about the history and culture of Australia's indigenous peoples and the broader significance of cultural diversity.

The DfL framework adopted a learning (rather than teacher) centred approach to the curriculum. Particular emphasis was placed on ensuring students had well supported experiences during their introduction and orientation to the university and their course during the initial stages of study. Emphasis was placed on the development of student support services closely linked to Faculties, Schools and courses.

A coordinated, integrated approach to the development of teaching infrastructure and staff development was introduced. This included the redevelopment of teaching and learning spaces, online and virtual learning resources and the introduction of a university wide approach to staff development to improve teaching practices and curriculum design. All academic staff, including casual teaching staff, were provided with the opportunity to participate in staff development activities to improve teaching and learning.

DfL progress

By the end of 2010 considerable work to implement DfL was underway across the university. The DfL programme became the responsibility of the Deputy Vice Chancellor (Academic). A Pro Vice Chancellor (Curriculum and Academic Planning) was appointed and a Curriculum Learning and Teaching Centre (CLTC) established. Educational development staff were appointed in each Faculty to assist with curriculum review and renewal. Resources were provided to allow staff to participate in staff development activities. A range of learning spaces, and in particular, the library, were renovated and refurbished. The online and virtual learning system was redesigned to make it higher quality and more flexible.

All Faculties identified and defined graduate capabilities, including both generic and course specific capabilities. Coordination processes were established to ensure

comparability of processes and standards for defining capabilities across Faculties. Capabilities were being progressively incorporated into appropriate capstone subjects and assessment tasks. Intended learning outcomes for subjects and their relationship to graduate capabilities were being mapped within different courses and examples of student work on assessment task were being collected for evaluation. The intent of this work was to clearly link subjects and learning sequences to capabilities and learning outcomes.

First year experience coordinators had been appointed for each Faculty to assist in the development of the first-year curriculum, improve student transition to university and improve the delivery of first year teaching and administration. Indicators were introduced to identify at risk students who need additional assistance in first year. Corner stone units had been identified and assessment processes for capabilities were introduced across faculties.

Opinion on the value of the DfL varied. The process of consultation and discussion had ensured that there was broad support for its principles and recommendations, but the desire for broad consensus also lead to tolerance for considerable variation in both the form and pace with which the DfL programme was adopted across the university.

The Faculty of Health Sciences

In 2012, the Faculty of Health Sciences at La Trobe University had 638 full time equivalent staff and 7,697 students across 139 undergraduate and postgraduate courses in health and human services (see table 2). The Faculty had four schools: Nursing and Midwifery; Allied Health; Public Health and Human Biosciences; and Rural Health. It also had a series of geographically dispersed clinical schools for allied health and nursing associated with major clinical facilities.⁷

⁷ Clinical schools were located at Bendigo Health, Alfred Health, Eastern Health, Northern Health and the Eye and Ear Hospital.

Table 2: Staffing, students and income by Faculty organisational unit

	Allied health	Nursing and midwifery	Public health and human biosciences	Rural health	Clinical schools	Faculty administration	Total
Academic	84	72	101	80	2	10	349
Professional	15	20	33	22	15	55	160
Casual	29	25	23	22	26	4	129
Total staff	128	117	157	124	43	69	638
Commonwealth load	2069	932	1382	1892	-	-	6275
Post graduate Full Fee load	144	150	173	22	-	-	489
International	150	237	342	44	-	-	773
Higher degree research							160
Established productive researchers	43	22	54	9		3	131
Early career Researchers	41	14	29	18			102
Research income ⁸	1,189	5,672	3,967	40	-	-	10,958
Total income ⁹	\$36,205	\$28,594	\$45,744	\$39,585	\$281	\$183	\$150,398

Courses were provided in: anatomy, physiology, health sciences, nursing, midwifery, dentistry, oral health, paramedics, physiotherapy, occupational therapy, podiatry, speech pathology, social work, orthoptics, prosthetics and orthotics, dietetics, nutrition, deaf studies, ergonomics, public health, health promotion, health information management, health policy, health administration, aged care, rehabilitation and counselling.

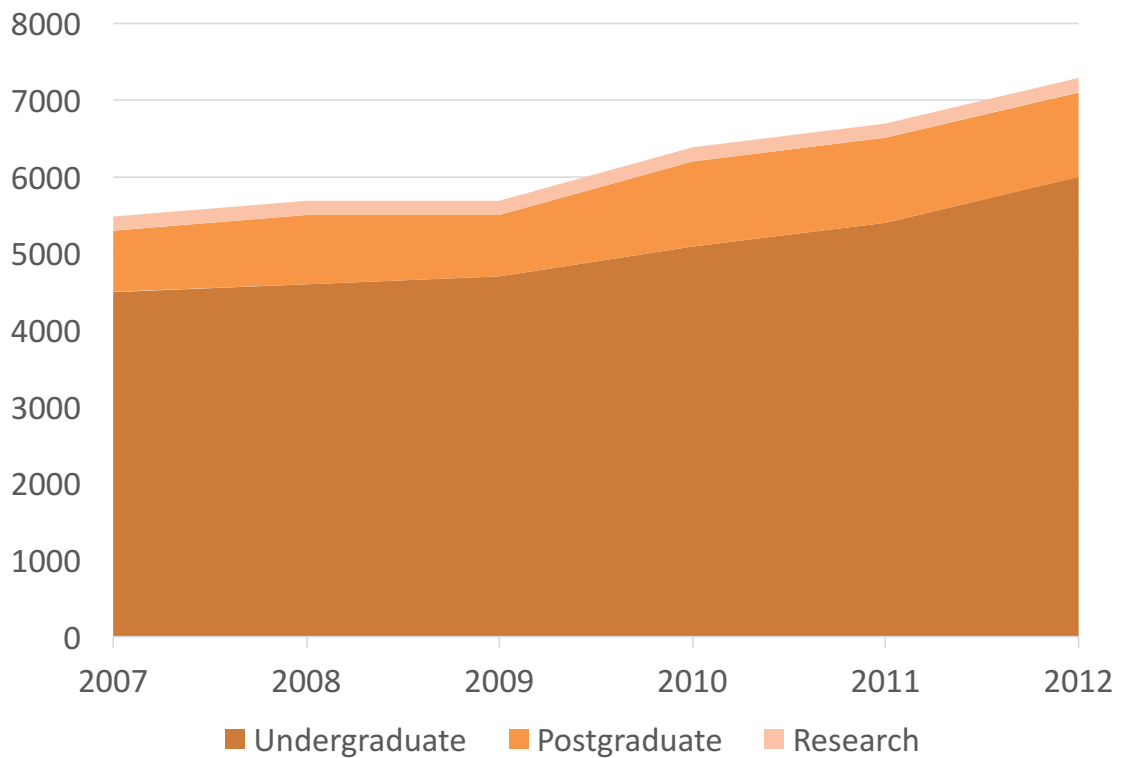
The faculty student load grew progressively from 2007 to 2012 largely as a result of the increased student load in clinical undergraduate programmes and the generalist Bachelor of Health Sciences (see figure 1). Much of this increase was associated with an expansion of clinical courses at the regional (country) campus at Bendigo.

⁸ Figures are in '000

⁹ Figures are in '000

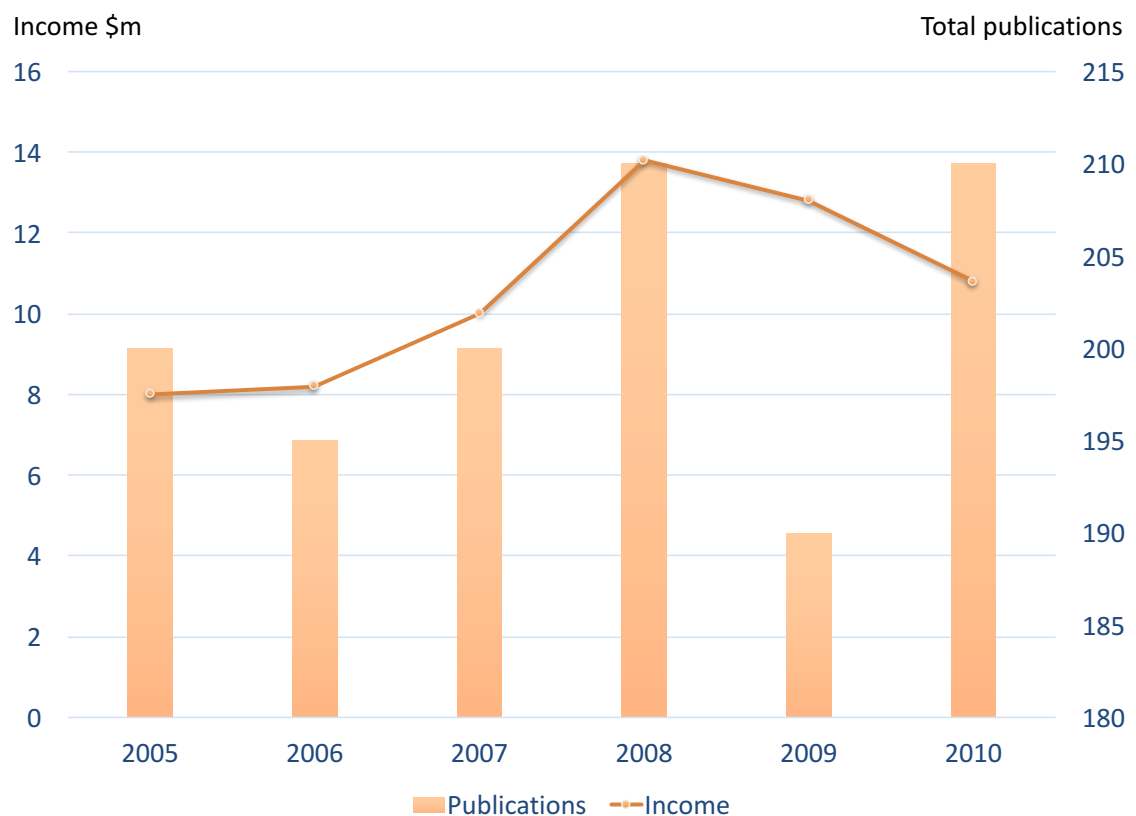
Figure 1: Equivalent Fulltime Student Load by year

Equivalent Full time Students



The faculty had well established research programmes in human movement and sports science; sex, health and society; primary care, aged care and mother and child health and emerging research programmes in living with a disability, and physical activity and rehabilitation. As figure 2 indicates, around 200 publications and \$10 million in research income were generated each year.

Figure 2: Publications and income by year



Prior to becoming the Faculty of Health Sciences at La Trobe University, the Faculty had been the Lincoln Institute for Health Sciences. The Institute had been formed in 1972 by the consolidation of the Schools of Physiotherapy, Occupational Therapy and Speech Therapy. Later additional professions had joined including the College of Nursing in 1977. During this period, it was the principal provider of allied health and nursing programmes in Victoria. When Lincoln Institute merged with La Trobe in 1988 as the School of Health Sciences and later the Faculty of Health Sciences, it progressively expanded its professional programmes to include dentistry and oral health in 2006, paramedic (ambulance) studies in 2010, dietetics in 2011, exercise science and physiology in 2011 and audiology in 2012. La Trobe also has programmes in pharmacy and psychology provided through the Faculty of Science Technology and Engineering.

Many of the professional courses in the Faculty of Health Science had only a comparatively recent history of university education. It is important to note that their historical roots in technical and further education and colleges had a significant impact on the culture and organisation of the Faculty.

Allied health

Traditionally allied health has been defined, as occupations that support medical practitioners and dentists in providing treatment, care and support. Historically, allied health professions worked under direct supervision, provided prescribed and clearly defined services or conducted relatively benign interventions, care and support that carried little risk to patients.

Allied health education in Australia evolved from apprentice model beginnings in the 1900s, often set in hospitals, to today's academic and clinical programmes delivered in universities. Individual professions typically developed and conducted their own courses individually before moving into the university sector. A number of factors were instrumental in the shift to the university sector.

Perhaps, most importantly, allied health professions learnt the lesson provided by medicine, that professional control of regulation, standards and education enhanced professional autonomy, power and income. Not surprisingly, for allied health professions, the shift to tertiary education in the 20th century was driven by the development of professional associations. Associations were often formed to obtain legislative recognition and regulation of professional skills. Associations sought increasing professionalisation by progressively raising academic standards. However the move to tertiary education was not supported by all associations or practitioners, with a number of colleges not wanting to lose control of training and accreditation (Eldridge 1968). By the 1940s dentists, nurses, masseurs and opticians all had individual registration acts and boards to control their respective professions (Nash 1989). Members of these groups lobbied on behalf of these professions for standardisation and increased status through government control (Nash 1989).

The impetus for the rapid development and increased government support for allied health specialities during the first half of the twentieth century resulted from the repercussions of the two world wars (particularly WWII) and the poliomyelitis epidemic. Allied health professions progressively emerged over the 20th century, often as adjuncts to medicine. Medical practitioners needed assistance to support rehabilitation of severely

injured soldiers and later to address the significant rehabilitation needs associated with polio epidemics.

Progressively, allied health developed a set of expertise and skills related to rehabilitation. In this respect they began to draw on the scientific literature to develop practice and technique (Bentley and Dunstan 2006). As with medicine, this was the beginning of evidence based practice. Over time the idea of evidence based practice, validated through research became a key defining characteristic of increasing professionalization and the transfer of allied health training to the university sector.

The Martin Report on the future of higher education in Australia, had a significant influence on the transfer of allied health training to higher education (Martin 1965). The report led to the establishment of Colleges of Advanced Education (CAEs). These, vocationally focused institutions provided the vehicle for a number of emerging professions to strengthen their education and training while at the same time opening the possibility of applied research to develop professional practice (Duckett 2004). The creation of CAEs separated vocationally oriented professional education and applied research from the university sector thereby creating a binary divide.

In the period to 1990 much of the growth in the higher education sector was absorbed in CAEs. Allied health and nursing had been integrated into these institutions and only medicine and dentistry continued to be provided solely through the university sector. Two CAEs, the Lincoln Institute of Health Sciences in Victoria and the Cumberland College of Health Sciences in New South Wales focused specifically on nursing and allied health.

In Victoria, the formal education of allied health students was originally conducted separately by individual profession-specific schools or in privately run institutions. The main schools were the Victorian School of Speech Therapy (later known as the Victorian School of Speech Science), the Victorian School of Occupational Therapy, and Victorian School of Physiotherapy (Duckett 2004). These schools were supported by the Hospital and Charities Commission, which was the hospital funding authority in Victoria at the time. In the later part of the 1950s and early 1960s moves were made to co-locate these schools, partly to share capital costs. Lincoln House (Lincoln Institute of Health Sciences) was

opened in 1966 to accommodate these three schools and later expanded to include a school of podiatry in 1978. The Lincoln Institute of Health Sciences later became the Faculty of Health Sciences at La Trobe University.

The binary divide was dissolved in the early 1990s following the publication of a white paper on higher education (Dawkins 1988). The policy statement argued that larger and more efficient higher education institutions were needed to facilitate economic growth and development. This led to the creation of a new set of universities based on former CAEs and the amalgamation of a number of CAEs including the Lincoln Institute (with La Trobe University) and the Cumberland College (with the University of Sydney) (Mahoney 2006).

To a greater or lesser extent allied health professions have established their own self-governing professional associations and they have progressively sought to strengthen regulatory processes for the registration of individual professionals, the use of titles and constraints over practice. As a result, these professions have achieved professional status and regularly make claims for greater autonomy and self-regulation, particularly with respect to medical oversight and control.

The major allied professional courses taught in the Faculty of Health Sciences at La Trobe were physiotherapy, speech pathology, occupational therapy, dietetics, orthoptics, prosthetics and orthotics, podiatry, social work, exercise science, and audiology. The Faculty also taught health information management and informatics. Clinical psychology and pharmacy were taught at La Trobe, but in a different Faculty.

There are many common features in the development of identity across these professions, but they each have their unique history which has to be considered. The following sections briefly outline the history of the major allied health disciplines taught at La Trobe.

Physiotherapy

From its origins in massage therapy at the beginning of the 20th century, physiotherapy has successfully become an established health profession. There are over 10,000

physiotherapists practicing in Australia (Australian Institute of Health and Welfare 2016). The profession is widely employed in public health services and there is a significant body of private practitioners. Physiotherapists now have access to private and public insurance rebates for their services. There are also high profile physiotherapy positions with major sporting bodies and clubs. Demand for physiotherapy places in higher education is strong. Often applicants have secondary school achievement equivalent to medicine, law and dentistry. Interestingly, as physiotherapy has become more established profession, there has also been a significant shift in the gender mix for physiotherapy courses as increasingly more males have joined the profession.

The mechanisms for professional development have been successfully deployed by physiotherapists. There are well developed professional standards for practitioner registration and physiotherapy is one of the 14 health professions which require national registration. Similarly, the profession has carefully safeguarded course accreditation and monitoring procedures through the Australian Physiotherapy Association. Physiotherapy education has now been incorporated across the university sector (McMeeken, Webb et al. 2005, Chipchase, Galley et al. 2006). Specialisation at masters level has grown and doctorates in physiotherapy are emerging. There is a heavy emphasis on research driven development of evidence based practice across the profession.

Interestingly, massage, physiotherapy's precursor was first taught at university level 1906 at the University of Melbourne (University of Melbourne nd) (Chipchase, Galley et al. 2006). Graduates of the two-year programme were awarded a diploma of massage by the Australian Massage Association. This was followed almost immediately with the establishment of renamed physiotherapy programmes in New South Wales and South Australia at the Universities of Sydney and Adelaide respectively. These programmes were affiliated with medical programmes and hospital training and focused on anatomy, physiology and the practical aspects of massage, including clinical experience in hospital settings.

Physiotherapy's progressively stronger professionalization occurred during the twentieth century. Significant numbers of patients required physical rehabilitation as a result of injuries sustained during the first and second world wars and the poliomyelitis epidemics

prior to the introduction of successful vaccination programmes. Demand for physiotherapists expanded to provide these services. Over time, from their early focus on massage, physiotherapy developed a greater range of assessment, treatment and rehabilitation techniques for physical injury and movement disorders.

Initially, the development of professional technique was grounded in practical experience, but over time greater emphasis was placed on the development of practice through research. As physiotherapists developed and codified practice, they sought greater autonomy and control over their professional practice from medicine. The strength of the profession was further enhanced when the Commonwealth Government included physiotherapy as part of the Commonwealth Rehabilitation Scheme for ex-service men and women after the second world war (Bentley and Dunstan 2006). Having begun as adjuncts to medicine, by the mid 1970s physiotherapists had rescinded the requirement that services be provided on referral from a medical practitioner (Chipchase, Galley et al. 2006).

The Australian Massage Association became the Australian Physiotherapy Association in 1939 and physiotherapy training progressively developed across all Australian jurisdictions (Bentley and Dunstan 2006) (Chipchase, Galley et al. 2006). The APA had a significant influence over the profession through its development and control of physiotherapy education. Four-year bachelor programmes became the dominant form of training during the 1960s as physiotherapy became one of the first allied health programmes to be incorporated in the new CAE sector which emerged at that time following the Martin report into tertiary education (Martin 1965). In New South Wales the New South Wales College of Paramedical Studies became the Cumberland College of Advanced Education and physiotherapy became a foundation school offering a four-year bachelor of applied science (physiotherapy) programme. In Victoria, physiotherapy became a foundation school in the Lincoln Institute for Health Sciences.

Speech Pathology

Speech pathology is a significantly smaller profession than physiotherapy with around 3000 speech pathologists being employed in Australia in 2001 (Australian Institute of Health and Welfare 2016). It was also established comparatively more recently. The first

speech pathologists were employed in Australia around 1930 with the first clinics being opened in Sydney (McDougall nd) (Eldridge 1968).

The early practitioners were trained in the United Kingdom and subsequently advocated for the introduction of education and training for speech pathology in Australia. A hospital based diploma course based on the British model commenced in Sydney during the 1930s. Progressively this programme was extended to a three-year course and taken up in other jurisdictions during the 1940s and 50s. In both Victoria and New South Wales schools of speech pathology were incorporated into the Lincoln Institute of Health Sciences and the Cumberland College of Health Sciences respectively when the CAE sector was established.

Speech pathology programmes moved to the university sector with the integration of the CAEs. In 2012 Courses were available at 10 universities in all Australian states except Tasmania. The majority of these courses were four-year undergraduate bachelor programmes, however there was an emerging trend to introduce graduate entry masters qualifications.

Speech pathologists sought to promote their interests through the establishment of the Australian Association of Speech Therapists (the earlier professional title) in 1944. Its successor organisation, Speech Pathology Australia, became recognised as the body responsible for the accreditation of Australian speech pathology programmes. It established the usual process of standards setting, monitoring and review for this purpose.

The professional identity of speech pathology has been closely associated with the development of educational programmes, course accreditation and affiliation with Speech Pathology Australia. While speech pathology is not one of the 10 Australian professions which must meet registration requirements to practice, in reality, completion of a course recognised and accredited by Speech Pathology Australia is necessary to gain employment as a speech pathologist.

Notwithstanding the development of university courses, speech pathology remains an emerging profession. It has not yet acquired the same claims for professional autonomy

and status as physiotherapy. Most practitioners are employed in the public sector; it remains a predominately female profession and there has been little development of private practice.

Occupational Therapy (OT)

In 2001 there were approximately 5,500 occupational therapists employed in Australia (Australian Institute of Health and Welfare 2016). While it is therefore a larger profession than speech pathology, it remains a comparatively small compared to nursing and medicine.

Occupational therapy has its origins in the enlightenment ideals for the reform of institutional care for the mentally ill. Engagement in meaningful occupation and work (rather than confinement) became an increasingly important part of rehabilitation and adjustment in the 19th century (Quiroga 1995).

From its early beginnings, as with physiotherapy, occupational therapy was significantly influenced by the first and second world wars and the polio epidemics which occurred during the same period. Soldiers and services personnel who were injured and disabled needed assistance with rehabilitation to manage the tasks of everyday living. Medical and nursing staff needed assistance with their rehabilitation and interest in rehabilitation therapies began to emerge. Initially, closely allied with physiotherapy, occupational therapy emerged as one of the key groups to manage these needs (Eldar and Jelic 2003).

With the modern development of occupational therapy courses, standards to manage practice, and societies to control entry to the profession emerged during the 1930s and 40s when the first occupational therapy courses were put in place and occupational therapists began practicing in hospitals in Sydney and Melbourne. (Anderson and Bell 1988). Much of this activity occurred in repatriation facilities for returned service men and women who had been injured or traumatised. Occupational therapy provided an adjunct to medicine and nursing under the supervision of medical practitioners.

Progressively, as demands for trained staff grew training courses were developed, initially through technical colleges and repatriation hospitals. The first courses were sponsored

and controlled through the Australian Physiotherapy Association in conjunction with technical colleges and the University of Sydney. These transferred to the control of Australian Association of Occupational Therapists in the mid 1940s (Lyons 2004). An occupational therapy school was subsequently established in Victoria in the late 1940s (Anderson and Bell 1988). Following the Martin report and the creation of CAEs occupational therapy education moved into the CAE sector in the 1960s, principally at Lincoln Institute for Health Sciences and the Cumberland College of Health Sciences. When the CAE sector was integrated with the universities in the 1990s, occupational therapy became widely provided by the university sector.

As with physiotherapy and speech pathology, occupational therapy is comparatively popular with students in Australia. Demand for available places amongst secondary school students is high and Australian Tertiary Admission Ranks (ATARs) are generally above 80 indicating that courses are popular with the most qualified 20 percent of these students.

National registration has been required to practice as an occupational therapist since 2010. Private practice is relatively uncommon amongst occupational therapists and the majority are employed in publicly funded health and aged care services. Occupational therapy also continues to be a heavily female dominated profession.

Occupational Therapy Australia, the national professional body for occupational therapists has principally sought to protect and enhance the profession by accrediting and reviewing courses. It has established standards and procedures for the accreditation and review of occupational therapy programmes in universities for this purpose and graduation from an accredited course is generally required to practice as an occupational therapist.

Dietetics

Dietetics is a small, but growing profession. In 2001 there were 1994 dietitians in Australia (Australian Institute of Health & Welfare 2003b). The profession has its origins in the 1930s and 40s when the first practitioners were appointed and the first associations of dietitians were established. This early period was influenced by an increasing emphasis on the application of scientific approaches to nutrition in

hospitals. Initially appointments were nurses with dietetics training in the United Kingdom or the United States. Hospital based training was introduced in Australia during the 1930s in Melbourne and Sydney. Dietetics was closely associated with nursing and the development domestic economics, particularly at the Emily McPherson College of Domestic Economy in Victoria (Nash 1989).

State based professional associations for dietitians were initially established in the 1930s. The first national association for dietitians was established in the 1950s. In the present day, the profession is represented by the Dietitians Association of Australia. As with other allied health professions the early focus of these associations was on the establishment and expansion of training programmes (Nash 1989). Although standards varied between States, with Victoria retaining a greater emphasis on domestic economics, progressively, dietetics training became associated with the development of nutritional science. Nutritional science programmes expanded during the 1970s and applied postgraduate certificate and diploma training for dietitians following an applied science degree became a commonly accepted pathway to practice. More recently, undergraduate dietetics and nutrition courses which incorporate the required applied science have developed. Dietetics is now widely taught in health science faculties in Australian universities.

Notwithstanding the significant professional development of dietetics, it remains an emerging profession. The Australian Health Practitioner Agency does not require dietitians to register to practice. The majority of practitioners continue to be female and work in public health settings, usually as part of a team supervised by medical practitioners, although private practice amongst dietitians has increased, particularly following their inclusion in the national Commonwealth Medical Benefits Scheme which provides patients with rebates for specified allied health services. Dietitians generally need to be graduates of a programme accredited by the Dietitians Association of Australia to practice.

Orthoptics

Orthoptics is a small profession which is closely associated with the diagnosis, treatment and management of visual disorders in public hospital settings, including eye movements and vision loss. In 2001 there were 441 orthoptists in Australia. The profession developed as an adjunct for ophthalmologists and ophthalmic surgeons. Unlike optometrists who

have become relatively autonomous from medicine, orthoptists continue to work closely with specialist medical practitioners (Cole 2003).

As with other allied health professions, orthoptics initially developed in the early part of the 20th century in the United Kingdom. Training was conducted in hospital settings as diploma courses. In New South Wales these programmes moved to the Cumberland College of Health Sciences in 1975 and then to the University of Sydney following the dissolution of the CAE sector.

In Victoria orthoptics training was conducted at the Royal Eye and Ear Hospital before it transferred to the Lincoln Institute of Health Sciences in 1975 (Duckett 2004). The course subsequently moved to the Faculty of Health Sciences at La Trobe University in 1988 following the amalgamation of the Lincoln Institute of Health Sciences and La Trobe (Orthoptic Association of Australia Victoria 2003).

Orthoptics remains an emerging profession. National registration is not required for practice, although practically, graduation from a programme accredited by Orthoptics Australia is required for practice. There are few private practitioners and only two training programmes (University of Technology Sydney and La Trobe University).

Prosthetics & Orthotics

Prosthetics and orthotics is also a relatively small and emerging profession. In 2001 there were 379 orthotists employed in Australia (Australian Institute of Health & Welfare 2003b). The course conducted at La Trobe University is the only course for training prosthetists and orthotists in Australia.

The profession has its history in splint making and technical apprenticeships for making prostheses and orthoses. As with other rehabilitation related professions, the first and second world wars, and the polio epidemics of the time were key factors driving the employment of prosthetists and orthotists (La Trobe University, Lincoln School of Health Sciences et al. 1988). Prosthetists and Orthotists worked closely with Repatriation Artificial Limb and Appliance Centres (RALACs).

Initially prosthetics and orthotics was seen more as a trade than a profession. Trade training was conducted in association with the RALACs. Courses were strongly associated with the needs of the Commonwealth Repatriation Commission for services personal. However, during the 1970s, practitioners were successful in moving training into the CAE sector by joining Lincoln Institute of Health Sciences. Initially a three-year diploma was offered and subsequently a bachelor's degree programme.

Overtime, professional orthotists and prosthetists have differentiated themselves from technicians who work under their direction. However, the profession is still emerging and there is no formal requirement for prosthetists and orthotists to have formal university qualifications to practice. The Australian Orthotic and Prosthetic Association which was founded in 1975 is the principal body advocating for the interests of the profession. Most practitioners work in the public sector and there is little private practice.

Podiatry

Podiatry is concerned with the prevention, diagnosis, treatment and rehabilitation of medical and surgical conditions of the feet and lower limbs. As with most other allied health professions, formal education of podiatrists began in the late 1920s. Prior to the introduction of formal training, a range of tradespeople performed many of the tasks now associated with podiatry (Schnock 1989). As opportunities and demand for practitioners increased, the development of formal training became a key element in defining, managing and expanding the profession.

Initially practice and training for podiatry (or chiropody as it was known) was closely associated with pharmacy. Many pharmacists extended their income by offering these services. In both New South Wales and Victoria pharmacy bodies provided courses in chiropody. Chiropody courses conducted by chiropody associations subsequently replaced these early courses in conjunction with clinical experience in public foot clinics. These were formalised as training institutions during the 1930s (Schnock 1989). The first school in Victoria was established in Melbourne in 1930 by the Chiropodists' Association of Victoria. In New South Wales training was formalised at about the same time under the auspice of the Australian Institute of Podology (Thearle 1998).

Overtime these early programmes became diploma courses and by the late 1960s were incorporated into the CAE sector in both New South Wales and Victoria through the Cumberland College of Health Sciences and the Lincoln Institute of Health Sciences respectively. As with other allied health programmes, with the dissolution of the CAE sector, these courses were incorporated into universities.

Although greater in numbers than prosthetics and orthotics, podiatry remains a relatively small profession. In 2016 there were 4666 podiatrists in Australia (Australian Institute of Health and Welfare 2006c, Podiatry Board of Australia 2016). The profession is represented by the Australian Podiatry Association. The Association accredits and monitors courses and conducts continuing professional development. Although it is still an emerging profession, podiatry practitioners are required to meet nationally mandated registration requirements.

Social work

While social work is often provided in health settings, it has a broad professional focus on the prevention and resolution of social problems for communities, groups and individuals. In Australia, most social workers are employed in health and community services settings. Women make up the larger proportion of graduates (McCormack 2001). Social work both complements and competes with a range of more specialist vocationally oriented para professional courses provided through the Technical and Further Education sector. Professional registration is not required to practice as a social worker. There were 19,500 social workers in Australia in 2008 (Department of Education Employment and Work Force Relations 2008).

Social work courses combine foundation knowledge in psychology, sociology, research, government, health with professional social work perspectives and practical field work placements. Initially courses were influenced by those in the United Kingdom and the United States (Lawrence 1965). But Australian courses tended to be more practical and focused on the knowledge and skills needed for vocational settings including health, welfare, prisons and schools. Courses focused both on providing assistance to individuals in difficulty and on advocacy and prevention of the social conditions that led to the difficulties in the first place (McDonald and Jones 2000).

Australian social work training began in the 1920s in three social work training institutes in Melbourne, Sydney and Adelaide. The establishment of these courses was influenced by a network of women's organisations and welfare organisations including the Red Cross and Councils of Social Service (Wilson 2005).

Courses began as two year programmes, extending to four years over time. They became university courses during the second world war. Further courses were established at the University of Queensland in 1956 and at the University of Western Australia in 1965 and the Western Australian Institute of Technology in 1966. Eleven schools of social work were in place by 1976 following significant expansion during the Whitlam Labor Government. By 2005, there were more than 20 Schools (Wilson 2005).

In Victoria, Social Work was first established at the University of Melbourne. The social work course in the Faculty of Health Sciences at La Trobe University had its antecedents in the Lincoln Institute of Health Sciences.

Social work can be studied as a four-year undergraduate bachelor's degree or a two-year postgraduate master's degree. Social work courses are accredited by the Australian Association of Social Workers. Membership of the Association requires completion of an accredited course. Eligibility for association membership is generally a requirement for reemployment as a social worker.

Exercise science and physiology

Exercise physiologists specialise in the use of physical activity to assist in rehabilitation and improve health and wellbeing. Exercise physiology (also known as kinesiology in the United States) has been a specialist focus of physiology since the 1800s (Ivy 2007).

In Australia, exercise physiologists work in a range of private and public health settings. Exercise physiology is a small profession in health settings, but much larger in general physical training and education settings. There is strong student demand for these courses and most Australian universities now offer undergraduate exercise or sports science programmes. Exercise physiology courses complement and compete with physical

education and training programs focused on teacher education, personal training and gym instructing on the one hand and physiotherapy on the other.

Exercise science and physiology courses are accredited by exercise and sports science Australia.¹⁰ However, unlike physiotherapy, professional registration is not required to work as an exercise physiologist. The exercise science and physiology programme at La Trobe University was introduced in 2011.

Audiology

Audiology developed as a profession more recently than other allied health professions. The technology required to assess hearing and to provide remediation has developed in the last half century. Medical practitioners, speech pathologists and hearing aid dispensers were principally involved in assessing hearing prior to the development of audiology (Casey and Monley 2006). Audiology is a comparatively small profession. In 2001 there were 795 audiologists in Australia (Australian Institute of Health & Welfare 2003a, Australian Institute of Health & Welfare 2003b).

As with other allied health professions, the second world war provided much of the impetus for the development of an audiology workforce. A significant proportion of returned service personnel experienced hearing loss, particularly air force staff. Medical practitioners needed assistants to help them assess and treat hearing problems. Audiology developed and expanded as a direct result. The Acoustic Testing Laboratory was established in Sydney in 1943. This later became the Commonwealth Acoustic Laboratories (Casey and Monley 2006).

Demand for hearing assessments and treatment was also exacerbated by rubella outbreaks in the 1940s which lead to an increased number of deaf and hearing impaired children. New services and organisational arrangements were put in place to address this problem through the Commonwealth Acoustic Laboratories (Upfold 2000). Currently hearing services are provided nationally through the Australian Government Hearing Services Programme.

¹⁰ <https://www.essa.org.au/education-providers/>

Audiology varies somewhat from other allied health professions in that it has often been an additional qualification for other health professions. In Australia, it was closely associated with psychology. The Commonwealth Acoustic Laboratories commenced a programme of recruiting psychologists to take a postgraduate diploma in audiology in the period following the second world war. Psychologists were considered to have the necessary basic understanding and skills for audiology and audiometry. This practice continued into the 1970s. With the expansion of services for aged pensioners in the 1970s, demand for audiologists rapidly expanded, leading to the development of postgraduate diploma programmes in the University sector. A two-year masters degree in audiology has become the primary pathway to practice since the late 1990s.

The profession is represented by Audiology Australia (the Audiological Society of Australia). It has responsibility for the accreditation and review of professional training programmes and continuing professional development in audiology. In 2012 there were six masters degrees and one double degree (bachelor/masters) programmes in audiology. While national registration is not a requirement, professional practice generally requires graduation from an accredited programme.

Pharmacy

Pharmacy is a much older profession than other allied health professions. It is arguably separate and distinct from other allied health professions, but in practice it is heavily allied to medicine. Much of pharmacy practice is done on prescription from a medical practitioner. Pharmacy has its origins in a long tradition of preparing compounds for the treatment of illness and disease which stretches back to pre-modern times, most notably through the development of apothecaries in Europe. Modern pharmacy emerged in the period of the enlightenment and the development of science. As pharmaceutical compounds became more effective during the 19th and 20th century, pharmacy expanded. Initially, apothecaries and later pharmacists were concerned with both the preparation and dispensing of compounds. More recently, with changing technology and mass production of pharmaceuticals, most clinical pharmacists focus on dispensing.

In Australia, pharmacy training commenced earlier than other allied health professions with the establishment of the Victorian College of Pharmacy in 1881. Pharmacy was also regulated earlier than other health professions. Formal registration was required as early as the 1830s (School of Pharmacy (UTAS) 2006). There have been legislative and regulatory controls over the training and practice of pharmacy since the early part of the 20th century.

Initially, pharmacy training was based on a four-year apprenticeship model. This gave way to three-year bachelor degree level training in the 1960s. Notwithstanding its close association with medicine, pharmacy training has remained relatively autonomous from both universities and medical schools. The Victorian College of Pharmacy was the first non-university institution to offer and confer a bachelor degree. More recently a number of universities, including La Trobe at its Bendigo campus, have developed and implemented four year bachelor programmes in pharmacy (Monash University Victorian College of Pharmacy 2003).

Pharmacy is a comparatively large and well established profession. In 1999 there were over 14,000 pharmacists in Australia (Australian Institute of Health & Welfare 2003c). It is a national requirement to be registered by the Pharmacy Board of Australia to practice as a pharmacist. Courses are accredited and reviewed by the Australian Pharmacy Council. The Council is an independent professional body explicitly established for this purpose.

Private practice in commercial organisations, including large networks, is the principal form of employment for pharmacists. The strength of the profession is further recognised by a national Pharmaceutical Benefits Scheme, which is funded by the Commonwealth Government to provide subsidies for pharmaceuticals provided on prescription.

At La Trobe, pharmacy was provided at the Bendigo campus through the Faculty of Science rather than health science. The Bendigo campus resulted from a merger between the University and the former Bendigo College of Advanced Education. For a period, the campus had relative autonomy, resulting in anomalous governance arrangements for health sciences courses, including pharmacy.

Paramedics

Paramedics is an emerging profession. In 2001 there were 7,000 paramedics employed in Australia. They made up about 1.5 percent of the health workforce (Productivity Commission 2005). Paramedics have their history in patient transport services, commencing as stretcher bearers and medics in the military and then progressing as ambulance officers in civilian practice (Wilde 1999). As with other emerging health professions, their role developed and expanded as a result of the first and second world wars. The role of paramedics also developed as front line and first responder emergency service developed in civilian settings, particularly in response to motor vehicle accidents and cardiac arrest.

Paramedics are still in the process of defining their professional identity. Discussions of their current status and role remain focused on claiming expertise, protecting organisational boundaries, controlling technologies and techniques and controlling entry qualifications and training (Mahony 2003). There is still internal debate within the profession as to where they sit in the hierarchy of profession development (Williams, Onsmann et al. 2009).

National registration is not yet a requirement to practice as a paramedic. However, employment as a paramedic or ambulance officer generally requires successful completion of a recognised qualification. Ambulance services are the principal employers of paramedics and the courses recognised for practice vary. The Council of Ambulance Authorities, representing the major employers of paramedics, has established an accreditation programme for entry level tertiary paramedic programmes. Paramedics are represented nationally by Paramedics Australasia, although in practice, their industrial union, Ambulance Employees Australia, which has branches in each State, is a much more significant body in representing their interests.

Higher education training for paramedics in universities is comparatively recent, but has expanded rapidly. Eighteen Australian universities provided paramedic programmes in 2016. The La Trobe University paramedic course was established on the Bendigo campus to provide opportunities for rural students in 2010.

Psychology

Psychology is unusual in that it has both discipline and professional characteristics. The majority of academic psychologists are not concerned with providing services to clients or patients. They are interested in investigating human cognition, emotion and behaviour for its own sake. A smaller, subset is interested in applying psychology to solve problems for individuals, groups and organisations. Within health settings, the application of psychology is focussed on a range of cognitive, behavioural and emotional issues associated with mental health, alcohol and drug problems and behaviour patterns associated with the prevention and management of chronic disease.

The academic and professional bifurcation of the profession is exemplified by the structure of professional training for psychology. To work in professional practice in health settings psychologists are required to complete an accredited four-year undergraduate degree in psychology followed by either a further two years in an accredited professional masters or two years supervised practice. Undergraduate programmes focus heavily on the application of research to the study of human learning and development, perception, cognition, emotion, behaviour and social organisation (Nixon 1990). Professional training seeks to apply psychological theory and evidence to prevent and solve problems experienced by individuals, groups and organisations and to enhance human performance. A scientist-practitioner model is widely supported as the model for professional training (Touyz 1995, Helmes and Wilmoth 2002)

The first psychology courses commenced in Australia in the 1880s at the University of Sydney. Academic training in psychology followed the British model with psychology teaching associated closely with philosophy (Turtle 1997). By the middle of the last century independent psychology departments had been widely established in Australian universities. Initially, located in arts faculties, more diverse organisational arrangements have progressively emerged. With the emergence of health sciences faculties following the merger of the university and the CAE sectors in the 1980s and 90s, a number of psychology programmes are now located with health sciences. In other cases, psychology has located in science faculties (as was the case at La Trobe University).

There is now general consensus that masters level training based on the scientist-practitioner model is required for professional practice and the earlier apprenticeship model of supervision is being phased out (Helmes and Wilmoth 2002, Helmes and Pachana 2006). Masters programmes in clinical psychology were first introduced in Australia in the 1960s (Richardson 2000). Masters level training is increasingly necessary to practice clinical psychology in health settings.

The number of psychologists practicing in health settings is comparable to physiotherapy and occupational therapy, although there is some uncertainty associated with estimates. In Australia, according the Psychology Board of Australia (2016) there were 7620 registered clinical psychologists in 2016. There has been a significant, recent increase in the number of postgraduate professional training programmes in psychology across the university sector (Byrne and Davenport 2005).

The Australian Branch of the British Psychological Society was established in Australia in the 1940s. It was replaced by the Australian Psychological Society in 1966. The Australian Psychological Association represents the interests of the profession. Registration with the Psychology Board of Australia is required to practice. The Australian Psychology Accreditation Council is responsible for accrediting all psychology training in Australia.

Psychology has been a course at La Trobe since the University was established and predated the establishment of health sciences. The School of Psychology was part of the Faculty of Science, Technology and Engineering rather than Health Sciences. It was merged with the School of Public Health in 2014 as part of the creation of the College of Science, Health and Engineering.

Dentistry and oral health

Dentistry is a powerful and well established profession. In 2001 there were 21,810 dentists registered in Australia (Dental Board of Australia 2016). Dentists are required to meet national registration requirements set out by the Dental Board of Australia. Dentists must graduate from a course accredited and reviewed by the Australian Dental Council (<http://www.adc.org.au>).

Formal training in dentistry was established in both New South Wales and Victoria in the late 1800s and legislative controls over dental practice followed shortly after. As with health practice generally, dental training and practice followed the models in place in the United Kingdom at the time (University of Sydney 2003) (University of Melbourne 2006).

Dental training was established at both the University of Sydney and the University of Melbourne. Following a short period during which a three-year programme leading to a License in Dentistry was offered, four Bachelor degrees in dentistry were established. Dentists were then required to complete these programmes or an apprenticeship scheme to practice. Apprenticeship schemes were discontinued in the 1930s.

Dentistry has a well-developed set of organisations to regulate and promote professional practice, registration and course accreditation. The Australian Dental Association (ADA) was established in 1928. The ADA has branches in all States and Territories. It represents the interests of the profession and oral health more generally. The Australian Dental Council is responsible for the accreditation of dental training programmes and the Dental Board of Australia is responsible for the registration of dental practitioners.

Incomes for dental practitioners are comparatively high and secondary students need to achieve results in the top one percent to gain a place in dental course. Dentists have also gained general use of the courtesy title “Dr” in common with medical practitioners. Dentistry was established at in the Faculty of Health Sciences at La Trobe in 2007.

Oral health - dental therapy and dental hygiene

Dental therapy and dental hygiene have emerged comparatively recently to assist dentists, practicing under their supervision. They are often considered as allied dental practitioners (Australian Dental Association Inc. (ADA) 2005). Dental therapists are permitted to provide a proscribed set of services to school aged children and young adults. Dental hygienists provide health promotion, cleaning and dental hygiene services to children and adults under the supervision of dentists.

The profession is small but growing. Therapists, hygienists and prosthetists make up about a fifth of the total dental workforce (Teusner and Spencer 2003a). In 2003 there were 1,560 registered dental therapists and 717 registered dental hygienists practicing in Australia in 2003 (AIHW Dental Statistics and Research Unit 2006).

Formal training for therapists and hygienists only began in the 1960s with registration following in the 1990s in most Australian jurisdictions. Therapists work with school aged children in publicly funded school dental services. Hygienists, who have a more limited scope of practice, generally work with dentists in private practice.

Training for therapists and hygienists began as diploma level education but is progressively shifting to three-year bachelor level training. Some qualifications, including the degree offered by La Trobe University combine the therapy and hygiene training in once course. Courses have evolved over time and the majority of training is now carried out through Bachelor of Oral Health degrees. Courses are increasingly provided in the university sector. Therapists and hygienists are required to register with the Dental Board of Australia to practice. Courses are accredited by the Australian Dental Council. Oral health was established in the Faculty of Health Sciences at La Trobe in 2006.

Nursing and midwifery

Nursing is the largest profession in the Australian health system. In 2012 there were 283,000 nurses practicing in Australia compared with 82,000 medical practitioners (Health Workforce Australia 2012, Australian Institute of Health and Welfare 2016). As with other advanced nations, in Australia, nursing has its history as the primary assistants to medicine in the provision of health care. Prior to the second world war, nurses were primarily trained in hospital settings. They lived in nurses' quarters and were trained as apprentices while they worked in more junior nursing roles rotating through different areas of nursing practice.

Notwithstanding its long-established tradition going back to the Nightingale period, in the time following the second world war it became clear that the apprenticeship model was not successfully meeting workforce demand for nurses. Training was variable in quality,

insufficiently based on evidence and slow to incorporate innovation. Additionally, training requirements often had to give way to demands service thereby limiting the availability of training places. Training was also often overly prescriptive, hierarchical and intrusive for the trainees. This led to high rates of attrition from the profession and diminishing demand from prospective nurses. A series of reports recommended reform to the training of nurses (Sax 1978).

By the 1960s demand for nurse education to move from hospitals to the tertiary education schools and colleges was well established. New models of nurse education outside of hospital settings were being developed and trialled, in line with international experience, but there was considerable resistance. Most nursing training was still conducted in three-year, hospital nurse training programmes and nursing was amongst the last major workforce sectors to integrate with the post-secondary education sector. Opponents of the transfer argued that it would adversely affect the costs, quality and type of applicants who entered nursing resulting in diminished nursing quality and a reduction in the availability of services provided by trainees.

It took until 1984 for the Commonwealth Government to announce that nurse education would transfer to the tertiary education sector in line with international trends. A staged process was developed and implementation was completed by 1993. This led to a significant expansion of higher education enrolments and a rapid increase in the qualifications of nurse educators as they joined the higher education sector (Heath Patricia 2002).

The Royal College of Nursing Australia developed a three-year Diploma in Applied Science (Nursing) in the early 1970s. In Victoria, this course was transferred to the Lincoln Institute of Health Sciences in 1974 (Duckett 2004). In Sydney, it was established at the Cumberland College of Health Sciences. By the early 1990s these diploma courses had been converted to Bachelor of Applied Science (Nursing) and the majority of hospital training had been discontinued.

Nursing has become an increasingly powerful profession. It is now highly regulated and registration with the Nursing and Midwifery Board of Australia under the auspice of the Australian Health Practitioner Regulation Agency is required to practice nursing in

Australia. Nurses are represented professionally by the Royal Australian College of Nursing and industrially by the Australian Nursing Federation.

On-going development of nursing and allied health

Whereas previously, allied health and nursing programmes had been based on apprenticeship models in health and hospital settings, the move to professionalize these programmes led to the separation of theory and practice. Foundation programmes in behaviour, social and biological sciences were taught at Lincoln Institute with preclinical skills and experience. Clinical and professional experience continued to be provided through a set of placements in health and human services settings. While many of the academic staff in allied health and nursing disciplines had clinical backgrounds and experience on appointment, with their location in a separate academic setting, overtime they became progressively more distant from professional practice and health care organisations.

With the dissolution of the binary system of Colleges of Advanced Education and Universities, Lincoln amalgamated with La Trobe University in 1988 to become first the School and then the Faculty of Health Sciences in 1996. At the same time a number of other universities in Victoria began to introduce allied health and nursing programmes. Many of these programmes were in high demand amongst school leavers and therefore attractive opportunities for academic expansion. As a result, competition for clinical and professional placements intensified. More and more health and human services organisations were recruited to provide placements, often for only one or two students at a time. This led to a significant proliferation and dislocation of placement organisation, development and support.

By the time the organisational and curriculum reforms outlined here were introduced, the Faculty had 14 major professional programmes, largely organised as relatively inflexible, discipline focused courses. Its professional placement programme was complex, fragmented and under significant pressure from competitors. In many cases, staff responsible for professional and clinical education no longer had clinical currency and were not directly associated with health or human services organisations. Importantly,

clinical placements and organisation had become progressively more difficult to obtain for a number of disciplines.

The new organisational arrangements for the Faculty of Health Sciences which form the backdrop for the curriculum reforms investigated here, were introduced in 2007. Planning for the new curriculum arrangements also commenced at that time. The new teaching and learning model as outlined above was introduced in 2009. The first student cohort was in year three in 2012.

Chapter 5: The curriculum reforms

This chapter reports on the development and implementation of the curriculum reform strategy introduced for the Faculty for the period 2009 to 2011.

The curriculum reforms were part of a broader set of organisational changes I introduced when I became Executive Dean. Immediately prior to my appointment, there was significant conflict between the Vice Chancellor and Executive Dean of Health Sciences about the future direction of the Faculty, particularly in relation to the expansion of health sciences courses on regional campuses. Ultimately both the Executive Dean and the Vice Chancellor resigned and I was appointed.

A subsequent review of the governance, organisation and financial performance of the University found significant emerging financial and budgetary pressure as the external environment outlined in Chapter 1 began to affect the University. As a result, all faculties came under considerable pressure to improve their financial outcomes. In practice this required both internal savings to be made and revenue to be increased through an expansion of student load.

At the time of my appointment the Faculty had 11 teaching units (schools and departments) and four research centres reporting directly to me. Eight of the teaching units were profession based (physiotherapy, occupational therapy, speech pathology, nursing, podiatry, health administration, prosthetics and orthotics and orthoptics). Two were discipline based (behavioural health sciences and human biosciences). The other was a rural health school which provided a range of professional courses in the regional city of Bendigo.¹¹

Professional schools and departments largely controlled their own curriculum development and teaching and assessment methods. Each provided a profession specific degree qualification. The schools of behavioural health science and human biosciences

¹¹ The Rural Health School was a recent addition to the Faculty as a result of a merger between the University and the Bendigo College of Advanced Education

were effectively service teaching units for the professional schools, although they had also developed their own generic undergraduate programme (bachelor of health science).

As a result, curriculum development, subject delivery and the organisation of clinical experience were both duplicated and fragmented. There was no common degree structure. There were no standard guidelines for subject workload and assessment. Consequently, subject workloads (student and staff hours), delivery methods and assessment requirements varied widely. Subjects like anatomy, physiology, pharmacology, pathology, behavioural health science and health sociology were organised and taught differently for different professional courses despite obvious commonality across subjects.

The organisation, philosophy and content of clinical programmes also varied significantly across professional schools and departments. Supervision arrangements, the time students were required to spend in clinical practice and assessment methods were determined separately in each academic unit without reference to other programmes. Some professions (e.g. nursing) had extremely well developed clinical training with clinical school partnerships, well established agreements about student clinical load, simulation facilities, well supported supervising clinical teachers and consistent, high quality assessment processes. Others struggled to find sufficient placement opportunities and the quality of clinical training was much more varied. Placement shortages had also lead to the establishment of some university based clinics run by individual schools or departments.

In part this diversity reflected different professional accreditation requirements, but there were also significant opportunities for much greater collaboration, integration and standardisation across professional programmes. There was also an important emerging problem that many of the clinical academics in allied health and nursing were no longer active practitioners. They had been appointed when nursing and allied health professions moved into the university from the vocational and training sector. Over time, their clinical skills, networks and experience had become outdated. Additionally, these staff were employed in research and teaching positions but often did not have the experience, skills or interest to engage in research.

At the beginning of 2006 an internal review of the Faculty of Health Sciences was initiated to address a projected budget shortfall of \$2.9 million. Significant workforce shortages were emerging in the health sector and the Faculty was under pressure to produce increased numbers of graduates, particularly for the nursing and allied health professions. An increasing number of Victorian universities had commissioned professional programmes in health sciences in competition with the Faculty. This had significantly increased the competition for, and the costs of, providing the required clinical placements for a number of Faculty courses. At the same time, Commonwealth funding had not adequately kept pace with the rising costs of providing clinical education in a more competitive environment. The Faculty also faced a more competitive research environment as a result of the introduction of the Research Quality Framework.¹²

Prior to the changes, the majority of the allied health programmes had been delivered as four-year stand alone, discipline or professionally based Bachelor programmes (e.g. Bachelor of Physiotherapy), except in the case of nursing, which was organised as a three-year bachelor degree. Although some professional (largely observational) practice was introduced early in the programmes, the first two years were primarily devoted to foundation and preclinical learning. Generally, this involved coverage of basic biological, behavioural and social sciences, research methods and then progressively more specialised subjects in pathology and clinical intervention.

While there was some inclusion of interdisciplinary approaches, over time the curriculum in the Faculty's professional courses had progressively become more specialised and discipline specific. As a result, quite similar content areas were often taught differently for each course and considerable unplanned variation in the efficiency and mode of delivery had resulted. Additionally, students had little ability to move between programmes without significant time and organisational penalties for doing so. For a small group of students who progressed satisfactorily through their theory and preclinical components

¹² The Research Quality Framework required each university to participate in an audit of their research performance. The results of the audit determined institutional funding levels to support research and postgraduate study.

only to experience significant difficulty in clinical settings, this was particularly problematic because there was no exit qualification.

The reform process

An organisational change process was developed to address these issues in consultation with senior staff in the Faculty, including the Deputy Dean, Faculty Director, key Heads of School and the Associate Deans. The change process was informed by the models developed by Kotter (1995) and Kanter (1991) . The key elements of change strategy were to:

- communicate a sense of urgency that change was necessary
- provide leadership support for change
- put in place a clear vision of the change required
- facilitate cogent consultation and communication strategy
- provide appropriate staffing and resources
- monitor and provide feedback and accountability on the strategy
- manage obstacles and issues
- focus on implementing change that was sustainable over time

The steps in the strategy were:

- the development of a discussion paper and consultation process
- the development and approval of a new curriculum model
- The allocation of resources to support implementation
- The development and implementation of leadership, governance and administrative processes to support implementation
- The development and management of a communication, engagement and education strategy to support implementation

A discussion paper setting out the issues facing the Faculty and potential solutions was circulated for comment in March 2006. The paper argued that:

- there were rapidly emerging external conditions which had the potential to reduce student demand for Faculty courses and the availability of necessary professional placement opportunities
- teaching and learning in higher education should reflect the research evidence on educational effectiveness
- teaching and learning processes which were not efficient in relation to available funding were unsustainable
- external stakeholders would demand graduates who have knowledge, skills and attitudes which are relevant to the settings in which they will be employed.

- students would discriminate between higher education courses on the basis of the perceived quality of education, the extent to which employers value courses and the extent to which courses meet their personal needs

The paper noted that noted that:

- It was possible to analyse the relative efficiency and sustainability of different course delivery processes.
- There was good evidence on student preferences for courses across educational providers.
- There was less evidence on student perceptions of course quality, responsiveness to their needs or student perceptions of employer preferences.
- There was good evidence on graduate employment outcomes and ratings of course quality.
- There was limited evidence on employer perceptions of course quality and ratings of graduate outcomes.

A second discussion paper on curriculum options was prepared for consultation in June 2006. It set out the major structural elements of curriculum reform which were to introduce a new Bachelor/Masters programme, a suite of Graduate Entry Masters programmes and a common foundation first-year across the majority of clinical programmes.

Following agreement about the establishment of interdisciplinary divisions, the main focus of the reform process was on getting a clear understanding of the curriculum issues confronting the Faculty and the options and choices for addressing them. There was considerable activity and discussion about issues and problems across the Faculty, which involved a large number of staff in a range of meetings and forums. The development of options and choices followed closely, sometimes overlapping with the analytic phase as an iterative process, often involving robust debate as ideas were tested and modified in response to the issues which were identified.

Not surprisingly, staff raised a number of issues during the consultation process on curriculum reforms. These fell under three broad themes: concerns about the rationale for change, questions about the evidence for the proposed solutions and pragmatic concerns about implementation.

Following an extensive period of consultation and discussion within the Faculty, recommendations to reform the curriculum and organisational structure of the Faculty were adopted by the Faculty Development Committee (FDC) in July 2006. The FDC recommended adoption of a curriculum reform model; the integration of Schools and Departments into four divisions (allied health, foundation studies, nursing and midwifery, and research), the introduction of a transparent budget model and the introduction of more prioritized management of research.

The agreed aims of the reform process were to:

- Improve the efficiency of course delivery, particularly in the first two years of the undergraduate professional programmes
- Improve the effectiveness of student learning, particularly in the professional and clinical experience components of the professional programmes
- Maintain and improve student satisfaction with subjects and courses
- Increase the availability of student placements in health and human services settings in an increasingly competitive environment
- Increase student demand and course viability
- Increase employer satisfaction with graduate outcomes
- Strengthen the relationship between research and professional education in health and human services settings

The reforms included the introduction of:

- A new Bachelor/Master degree sequence for professional qualifications
- A new common first year across all undergraduate professional programmes with the capacity for students transfer between courses at the end of first year
- Graduate Entry Masters programmes for all major professional programmes
- Clinical school networks in partnership with health and human services agencies for all professional placements and applied research programmes
- An enquiry and problem based learning model of teaching
- An academic governance structure and process to ensure internal quality assurance and improvement
- A new organisational structure based on interdisciplinary divisions (which later became Schools)
- Resources, staff and management structures to support the reform process

The key element of change, which is the focus here was the introduction of the curriculum reform strategy and in particular, the common first year for all professional programmes.

Chapter 6: Implementation and Outcomes

This chapter describes the process of implementing the reforms and the specific impact of the curriculum reforms and the introduction of the common first year on teaching efficiency, student outcomes and staff perceptions of their identity and role.

In accordance with the University's organizational change management procedures, an Organisational Change Impact Statement (OCIS) for the Faculty reforms was developed and circulated for consultation in October 2006. The OCIS set out the background and issues and specific change proposals for addressing them. It proposed the consolidation of the Faculty schools and departments into three Divisions (Allied Health, Health Studies and Nursing and Midwifery). Research leadership and research centres were brought together under an Associate Dean Research.

The rationale for change

Initially, the major curriculum development issues centred on the foundation first year, which the overwhelming majority of students were required to take in the new degree structure. Consequently, every discipline and profession represented in the Faculty had a stake in its development. Issues arose over the content to be included, the ownership and coordination of particular subjects, the teaching methods to be employed and the actual implementation of the first year, including timetabling, the allocation of teaching revenues, staffing and coordination.

A passionate minority of staff questioned the extent to which organisational and curriculum issues identified in the discussion papers warranted significant change across the faculty. There was little disagreement that the Faculty faced significant external challenges from competition as new courses in allied health and nursing opened or expanded, putting pressure on clinical placements and student demand. However, there was significant divergence of opinion about the extent to which these problems warranted fundamental reorganisation and change.

Some staff considered the move towards more flexible, interdisciplinary, efficient and student-centred enquiry-based learning models to be a major improvement consistent

with their reading of trends in other institutions and across their profession. This was particularly true for enquiry-based learning and the establishment of Graduate Entry Masters programmes which had already been adopted in Occupational Therapy and Speech Pathology. Other staff, particularly those in Human Biosciences and Public Health who supported more traditional didactic, discipline based models of teaching and organisation were more sceptical. They were more likely to question the need for the organisational and curriculum changes proposed in the discussion paper.

There was considerable debate between the different professional programmes, the public health and human biosciences staff, the Associate Dean Academic and senior staff in the Faculty about the specific versus general content to be included, particularly in relation to physiology and anatomy.

Staff from other professional programmes (e.g. physiotherapy) argued for greater specific content in their areas than could easily be accommodated in a foundation programme. There were also debates about the order in which content should be presented, the extent to which it would be possible to teach students with different levels of preparation in the same subject and the relative time which should be given to different content areas.

Evidence for the solution

A common theme amongst those who did not support significant change was to question the effectiveness of interdisciplinary and enquiry based models of course organisation and delivery. In part, their arguments drew on problems which had been experienced with an interdisciplinary subject which had been introduced into the curriculum prior to the proposed changes.

There was considerable support for the traditional lecture, seminar, tutorial teaching format. Suggestions that lecturing to large student groups should be replaced with facilitated small group instruction which focused on student centred learning supported by online content and support modules were fiercely debated. This led to questions about the extent to which the research literature on curriculum models supported the introduction of enquiry and problem based learning, particularly for the teaching of human biosciences (physiology and anatomy).

It was clear that a significant body of the staff saw lecturing as central to their academic role. It was how they displayed their subject matter expertise. They defined themselves by the practice of lecturing as 'lecturers' and 'senior lecturers'. For these staff, the idea of moving from didactic teaching of context expertise to facilitated learning through questions based on enquiries and problems required a significant change to both their academic practices and the way they conceptualised, and presented their identity and role. Given the challenges and costs they saw for themselves in change, not surprisingly, they wanted evidence that change was worth it.

Interestingly, questions about the value of interdisciplinarity and enquiry based approaches led to debate between staff teaching clinical programmes who had more experience of these approaches and those with a more traditional view, particularly in public health and human biosciences. It also led to considerable discussion of the research evidence and trends in health services and clinical practice which, as outlined earlier, increasingly emphasise interdisciplinary, team based practice and service delivery for health professionals.

Pragmatic concerns

Significant concerns about pragmatic issues emerged during consultation on the discussion paper. Staff were concerned about the disruption to existing organisational arrangements and work practices and the level of additional work that would be required to make changes. In relation to curriculum reform, they expressed concerns about the development work which would be required to rewrite subjects, the implications for timetabling, difficulties in combining students with different levels of preparation in the same subjects, and challenges associated with integrating school leaver and graduate entry pathways and allowing transfers between courses at the end of first year. Staff also raised questions about the validity of graduate attributes and the work required to map subject outcomes to graduate attributes

These issues were compounded by differences over who should teach and coordinate particular subject areas. In particular, the staff on the rural campus at Bendigo who had previously conducted their own programmes, were concerned that they would lose control and autonomy over their teaching.

The arguments for change largely centred on budgetary concerns, external threats from competitors and analyses which indicated that there were significant opportunities to improve the efficiency, effectiveness and flexibility of the curriculum.

It was important that senior staff accepted the process and directions for reform. Initially there was resistance and scepticism about the proposed changes amongst heads of schools and departments. A key point in the process was the decision of the Head of the School of Human Biosciences to support the proposed changes after considerable initial opposition. Support from other discipline heads including speech pathology and occupational therapy, who had significant experience and commitment to problem based learning, were also important.

Modifying proposals to consider specific concerns was critical to recruiting support from key academic leaders. This required careful balancing to retain the integrity of the model which was being proposed. In particular, proposals to eliminate the lecture – tutorial format were modified. Instead it was agreed that subjects could retain this format, but that it would incorporate the enquiry based learning model. Effectively, the extent of lecturing was reduced and became a support to the EBL process. Tutorials incorporated small group learning the EBL model, including learning and assessment methods.

More generally, the integration of small discipline based schools and departments into larger interdisciplinary units required compromise and staging. For a period of time schools and departments were brought together within a new divisional structure for the Faculty. The mix of disciplines included in each of the four interdisciplinary Divisions (later schools) was negotiated and modified to accommodate specific issues raised by academic leaders. This tactic retained the intent of creating interdisciplinary organisation and development for teaching and research, but allowed a period for divisional relationships and processes to be developed. The initial focus was on teaching, but in 2011 research centres were brought into the interdisciplinary structure as well.

Concerns about role and identity

Concerns were raised about requirements to participate in team based development of curriculum for subjects and peer review processes for subjects and courses. Staff felt they were losing autonomy and control over their personal development of subject content, teaching methods and assessment processes.

Further concerns were expressed about the loss of control and discipline identity associated with the creation of larger, interdisciplinary schools. Staff felt their professional identity was reduced with the loss of discipline or professionally focused academic units. Compromises were reached by allowing Schools to form internal professionally focused departments, although these departments had no resources or formal decision making power.

Reform structures and processes

The development and implementation of the reforms was managed through the Faculty Development Committee – effectively the Faculty executive. The FDC replaced the Faculty Board as the key decision making body. The Faculty Board was a comparatively large, broadly representative group including staff and students. By contrast, the FDC comprised the Dean, Deputy Dean, Registrar (later known as Faculty Director), Associate Deans, Heads of School and Directors of research centres.

As the consultation on the initial discussion paper proceeded, it was agreed that a process for managing the proposed reforms would be needed. The FDC agreed to establish:

a Working Group chaired by the Dean and comprising the Deputy Dean, the Associate Dean Learning and Teaching and the Registrar should be formed to examine these matters. It was agreed that the Working Party would more particularly examine –

1. the introduction of a Foundation Program where there is more commonality between courses in the first two years, consolidation of programmes and units, entry pathways and curriculum reform and / or restructure.
2. the introduction of a more centralised approach for organising clinical placements based on a Clinical School model and a partnership approach with external providers and
3. the need, if any, to restructure the Faculty's organisational structure in terms of Schools, activities and functions¹³.

¹³ Faculty Development Committee minutes 9th of March 2006

The working party managed the consultation process for the initial discussion paper. It organised workshops, consultation forums and held discussions on the issues which were raised. It coordinated the production of the Organisational Change Impact statement required by the University to establish the organisational and curriculum changes for the Faculty. The Organisational Impact Statement was endorsed formally through the University Academic Board in October 2006.

Once a set of key academic leaders indicated their support for the changes being proposed and the proposed reform strategy for the Faculty had been endorsed by the University, it was important to put in place structures, processes and resources to implement change. These included the establishment of a Faculty Transition Committee to manage the implementation of the new interdisciplinary divisions and the establishment of a Curriculum Reform Working Group to manage the development and implementation of the new curriculum. The CRWG was led by the Associate Dean Academic with support from newly appointed educational designers with funds to provide additional support for academic staff across the Faculty to develop the required subjects for the new curriculum.

The CRWG fleshed out and developed the new curriculum structure for the Faculty. These were endorsed by the University Academic Board in December 2006. Initially, it was planned to introduce the new curriculum for March 2008 (the commencement of the Australian academic year), leaving a year to develop the subjects required for the foundation year and to put in place the consequential changes to timetabling, student selection procedures, course promotion and information, academic staffing and course administration. However, it became apparent that external accreditation and marketing constraints made it difficult to meet the 2008 timeline and in November 2006, the FDC therefore agreed to defer introduction of the new curriculum until March 2009¹⁴. A final plan for the development of the new curriculum was agreed by FDC in March 2007.

The detailed development of the curriculum structure for each course and the foundation first year proceed during 2007 and 2008 coordinated by the CRWG. This included

¹⁴ Faculty Development Committee minutes 30 November 2006

significant discussion of the introduction of the EBL teaching model, the foundation first year, which came to be known as the common first year, and interdisciplinary practice.

The implemented foundation year included physiology and anatomy (human biosciences), health psychology (individual determinants of health) and health sociology (social determinants of health), public health (perspectives of health and well-being) and two interprofessional practice subjects. These seven subjects and an elective made up the common first year.

The establishment of a curriculum development fund was a key element in gaining commitment from staff across the Faculty for the curriculum reforms. The fund allowed the newly established Faculty Divisions to apply for funding to support curriculum development for their courses. The fund made it possible to release staff from teaching for curriculum development activities and projects. Specialist educational development staff were also employed to assist academics with curriculum development.

The Faculty agreed to a new, distributive model for the administration of the foundation first year in June 2008¹⁵. This required a major reorganisation of staff to coordinate the seven common subjects in the first year across the three new Faculty divisions and the rural campuses. As the administrative, coordination and staffing model for the new first year was fleshed out it became apparent that combining curriculum development activities with detailed administrative planning through the CRWG was not working. Curriculum development required the involvement of the key academic teachers. Administrative planning needed the heads of department and key administrative staff. These processes had to be separated and a new implementation committee was established for the detailed work on administrative processes, staffing, timetabling, room allocation and so forth.

Separating the process to manage the development of curriculum for particular subjects from the detailed negotiations required to administer and resource the new curriculum

¹⁵ Faculty Planning and Resources Committee minute June 19, 2008

was an important principle which was maintained in later years as the second, third and fourth years of the new curriculum model were developed and implemented.

Administrative, organisational and resource issues required considerable negotiation across disciplines and academic units across the Faculty to gain agreement on new arrangements. For the foundation year, these included the allocation of tutorial staff, timetabling across campuses for common lectures delivered by video conference, agreement about subject coordination responsibilities across campuses and allocation of responsibilities to mentor, support students for each professional course during the foundation year, teaching equipment and facilities, information for staff and students and mapping the old and new curriculum, particularly for students who had to repeat subjects. Many of these issues were unanticipated and emerged as the reforms proceeded. Their resolution required negotiation and compromise to resolve divergent perspectives and interests across campuses, divisions and specific professional disciplines.

In effect the CRWG and the implementation Committee negotiated and brokered the competing interests across the Faculty within the overall reform framework, which had been agreed, to develop the detailed changes which were required. Only when detailed issues could not be resolved through these processes were they brought back to me as Executive Dean for a final decision. During the early phases of implementation, these often involved attempts at fundamental revision to the agreed framework, such as gaining exceptions from the foundation year for specific disciplines or not using EBL for particular subjects.

My role was to protect the fundamental integrity of the model which had been agreed while allowing those responsible for the implementation process the flexibility to negotiate. As implementation proceeded, my role became less and less important. By late in 2008, much of the curriculum had been developed for the first year and the administrative, organisational and resource arrangements were largely in place. The Faculty conference to launch the new first year, held in October, illustrated the significant

change in commitment to the new model which had occurred, at least amongst those who had developed the new first year¹⁶.

By the end of 2008, the first year was fully developed and the EBL model had been generally accepted and understood as the basis for the development of the curriculum. A number of concerns remained, particularly about the combination of groups of 'mixed ability' in physiology and anatomy and the risk of 'dumbing down' the curriculum for higher performing students. However, there was general acceptance across the Faculty that the reforms should proceed.

Broadly the same developmental processes, incorporating the CRWG for curriculum development and an Implementation Committee to address administrative, resourcing and organisational changes was put in place for the development of the second year of the curriculum in 2009. These processes were subsequently continued for the development of the third and fourth years of the curriculum. Many of the same curriculum and organisational issues reoccurred in developing the later years of the curriculum as new participants joined the process. Again, many of the issues which arose had their basis in discipline and professional perspectives and the desire to retain control and autonomy over the content, delivery and organisation of the curriculum.

Implementing the new curriculum

The new curriculum was implemented for the first time in March 2009. The first year represented the most significant organisational challenge. It was the first Faculty wide application of the EBL model and the foundation first-year required the most radical change to the structure of the existing curriculum. There were a range of initial implementation issues. These included problems with timetabling and room utilisation, video conferencing to regional campuses, lack of facilities for student group work and conflicts about the balance between group and individual assessments.

¹⁶ Faculty Planning and Review Committee minute October 29, 2008

The CRWG and first year teaching team reviewed the initial implementation issues and a number of changes were made to adjust the organisation and content of first year in response. One of the more interesting outcomes of the initial implementation was the refurnishing of tutorial rooms for small group work and the development of a range of study spaces around the Faculty and in the university library to accommodate EBL. The CRWG provided a forum for translating implementation experiences for the development of curriculum in later years.

By 2011, the third year was in its first year of implementation, the second year had been implemented once and the first year had been completed twice. This was an appropriate point at which to investigate the extent to which the EBL model which underpinned the curriculum changes actually had been implemented.

A structured review of the extent to which EBL had been implemented in the curriculum¹⁷ was conducted as described in the methods chapter. The moderated ratings of the extent to which EBL had been incorporated into subjects in first and second year of the new Health Sciences curriculum are presented in tables 3 and 4.

Table 3: Implementation of Enquiry Based Learning for first year subjects

Subject	Year Level	EBL Potential	Mean or Global Rating
HBS1HBB (Human Biosciences B)	1	M	3
HBS1HBA (Human Biosciences A)	1	M	3
PHE1IDH (Individual determinants of health)	1	M	3.4
PHE1SDH (Social determinants of health)	1	H	4
HLT1IPA (Interprofessional practice A)	1	H	4
HLT1IPB (Interprofessional practice B)	1	H	4
PHE1PHW (Perspectives of health and wellbeing)	1	M	3
CFY Mean: 3.5 SD:0.50			

EBL Rating Scale: H (4) = High, M (3) = Medium, S (2) = Some, L (1) = Low

¹⁷ see Appendix 2

Table 4: Implementation of Enquiry Based Learning for second year subjects

Subject	Year Level	EBL Potential	Mean or Global Rating
HBS2SUM (Science and use of materials)	2	M	2.5
HBS3PAN (Pathophysiology, anatomy and neurology)	2	H	3.5
HBS2ALU (Anatomy lower and upper limbs)	2	H	3.5
HBS2ALF (Anatomy, lower limbs and foot)	2	H	3.5
HIM3CCA (Health classification and clinical coding A)	2	H	3
HIM4CCB (Health classification and clinical coding B)	2	M	3
HIM2HMA (Health Information Management A)	2	H	4
HLT2IEP (Integrating evidence into practice)	2	H	4
HIM3HMB (Health information management B)	2	S	2.5
ORT2ORS (Optics and refractive state)	2	M	3
ORT2PVS (Ocular physiology and vision science)	2	L	1
ORT3OPM (Ocular pathology and microbiology)	2	L	1
ORT3BVR (Binocular vision and refraction)	2	L	2
POD2PPA (Introduction to podiatry practice A)	2	M	3.3
POD3PPB (Introduction to podiatry practice B)	2	M	3
PTY3STM (Soft tissue management)	2	M	3.2
HBS2PTA (Human physiology theory A)	2	S	2.5
HCS2ACW (Analyzing and combining words)	2	S	2.5
2nd Year Mean: 2.83 SD:0.85			

All seven subjects in the common first year were rated as medium (3) or high (4) in the extent to which they had implemented EBL. There was much more variability in ratings of EBL implementation in second year and extent of implementation was rated as significantly different across the two years.

The mean EBL implementation rating for the first year was 3.5, indicating a relatively high level of adherence to the EBL model of teaching. The mean rating for second year was 2.83 which indicated only some adherence to the model. Implementation of EBL ratings ranged from 1 (low) to four (high) across 18 subjects which were rated. Only two subjects were rate as having highly implemented EBL (HMA and IEP). Both these subjects were in the Health Information Management course. Two subjects (PVS and OPM) were rated as having a low level of implementation. These subjects were in the Clinical Vision Science Course. The extent to which the remainder were considered to have incorporated EBL varied across disciplines and courses.

The first year of the programme was common to the majority of the Faculty of Health Sciences undergraduate professional courses. There had been significant investment in

curriculum design, training, support and coordination to ensure the implementation of EBL for the seven subjects which made up first year.

The second year of the programme was the responsibility of individual disciplines (e.g. human biosciences) or professional programmes (e.g. podiatry). Support for curriculum design and training in EBL was provided for staff developing and implementing the second year of the curriculum across the different professional programmes and disciplines. However, there was no overall Faculty wide coordination of the second year of the curriculum.

There were clear variations in the extent to which EBL was assessed as having been implemented across disciplines. Staff with greater involvement in the first-year programme, who also taught second year subjects which were reviewed, were more likely to adopt EBL practices in the second-year subjects. Discipline staff with less involvement in EBL were less likely to implement EBL.

The curriculum's impact on teaching efficiency

One of the critical reasons for introducing the curriculum reform strategy was to improve the efficiency of teaching across the Faculty. The impact of the curriculum reform strategy on teaching efficiency (technical efficiency) was investigated by comparing the staff workload required to teach first year in 2008 prior to the introduction of the reforms with the workload required in 2010, the second year of the implementation of the reforms.

The subjects in the reformed first year of the curriculum in 2010 are described in table 5. The first seven subjects in the table make up the common first year. The remaining seven are specific subjects required by various degree programmes such as health information management, nutrition and social work.

Table 5: Reformed first year curriculum subjects and teaching pattern

Subject	Teaching Pattern
Common first year	
HUMAN BIOSCIENCES A	Three 1-hour lectures per week, one 1-hour per week workshop.
HUMAN BIOSCIENCES B	Two 1-hour lectures per week, twelve 2-hour practical/workshops per semester and on-line activities.
INTERPROFESSIONAL PRACTICE A	Thirteen 1-hour lectures per semester, one 2-hour workshop per week, online activities.
INTERPROFESSIONAL PRACTICE B	Eleven 1-hour lectures per semester, ten 2-hour workshops, professional practice activity equivalent to 30 hours over the semester and self-directed activities.
PERSPECTIVES ON HEALTH AND WELLBEING	One 2-hour workshop per week in assigned enquiry teams, informed by one 1-hour lecture per week.
INDIVIDUAL DETERMINANTS OF HEALTH	Two 1-hour lectures per week, one 1-hour workshop per week, online activities.
SOCIAL DETERMINANTS OF HEALTH	one 1-hour lecture per week, one 2-hour tutorial per week and on-line activities
Other first year subjects	
MEDICAL TERMINOLOGY	one 2-hour lecture and one 1-hour seminar per week.
PREGNANCY CARE	12-hours of lectures, 11-hours of enquiry informed learning (small group work), 47-hours of independent investigation and on-line interaction and 80 hours of clinical practicum. This unit may have an online component.
ESSENTIAL NURSING CARE	One 1-hour lecture and one 1-hour workshop per week, and one 1-hour laboratory per week, plus 35 hours of clinical placement. This subject will have an online component.
PUBLIC HEALTH FOR NUTRITION STUDIES	three 1-hour lectures (all students) and one 3-hour seminar or practicum per week (BScNutrition students only).
PERSON-CENTRED CARE	one 3-hour seminar. The distance education option will be provided using LMS.
ORGANISATIONAL APPROACHES TO POLICY WORK	five hours of seminars and 30 hours of self directed study
SOCIAL WORK IN AN UNEQUAL WORLD	one 2-hour lecture and one 1-hour tutorial per week.

The first-year subject workload pattern and the number of EFTSL were used to calculate the staff workload required to teach the curriculum. Table 6 describes the EFTSL; number of subjects; lecture tutorial and other workload hours, coordination hours and coordination hours. The Faculty allocation of workload hours for these different categories varied and the details of specific allocations in the Workload Management Guidelines for the Faculty are described in Appendix 1.

Table 6: First year curriculum EFTSL, number of subjects, workload hours, full time equivalent staff and staff hours per EFTSL for 2008 and 2010

Variable	2008	2010
EFTSL in first year	1226	1542
Number of subjects	74	15
Lecture workload hours	7169	1604
Tutorial workload hours	20030	23719
Coordination workload hours	3360	1080
Other workload hours	1939	1766
Total staff workload hours	32498	28169
Staff workload hours per EFTSL	26.5	18.3
Full time equivalent staff (unadjusted for EFTSL growth)	49.4	42.8
Full time equivalent staff (adjusted for EFTSL growth)	49.4	34.0

The total staff workload hours required to teach first year were derived using the Faculty workload formula¹⁸. Allocations for each workload category were adjusted for the number of EFTSL, lectures and tutorial groups required as specified by the Workload Management Guidelines.

To ensure comparability, the Faculty workload formula for 2010 was used to calculate the full-time staff equivalent (FTE) which was required to teach the first-year curriculum for both 2008 (the year prior to the implementation of the common first year) and 2010. Using the Workload Guidelines, each staff member was allocated 1645 workload hours per year. Nominally 40% of staff workload (or 658 hours) was allocated for teaching. Total FTE required to teach the first year was therefore calculated by dividing the total workload required to teach first year by 658 hours.

Staff workload hours per EFTSL is a further measure of teaching efficiency. The fewer staff hours required per EFTSL the more efficient the teaching. Staff workload per EFTSL was derived by dividing the total staff workload required to teach first year by the total first year EFTSL.

In 2008 the Faculty had 1226 EFTSL in first year. This had risen to 1542 EFTSL in 2010 – a 26% increase in commencing load for the Faculty. The reform of Faculty of Health Sciences curriculum resulted in a dramatic reduction in the number of first year subjects. In 2008 there were 74 first year subjects. This was reduced to 15 by 2010. The overwhelming

¹⁸ See appendix 1

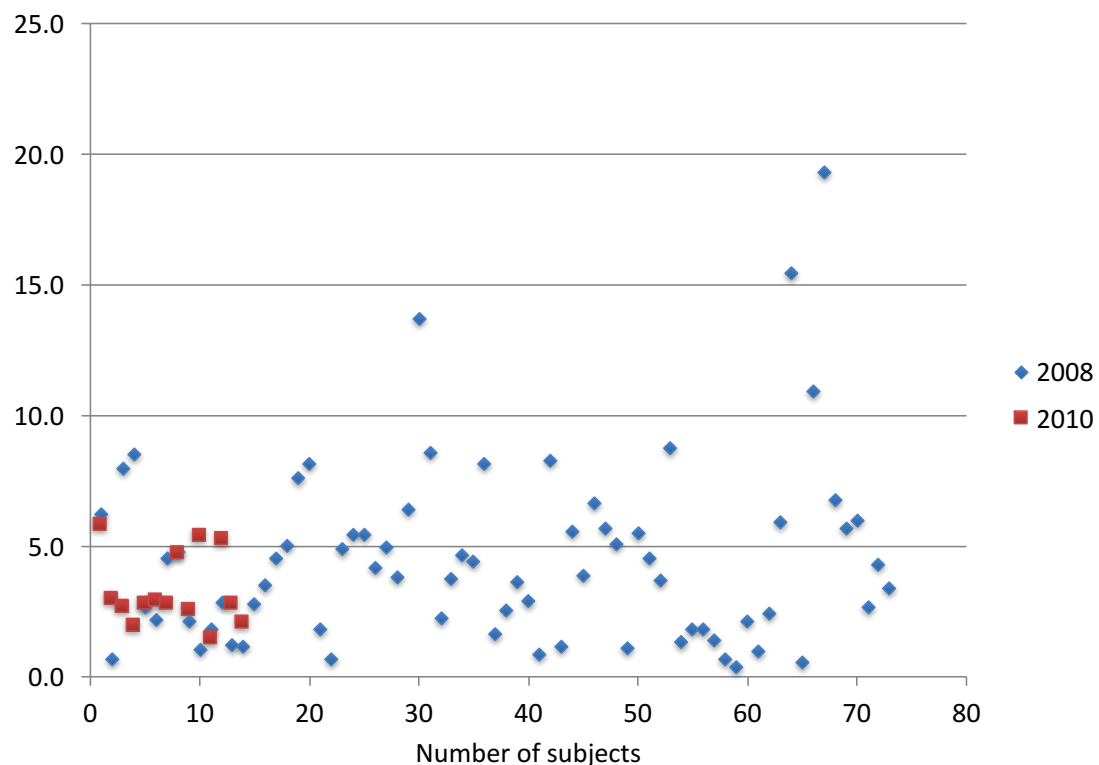
majority of students in the Faculty studied the seven subjects which comprised the common first year for the new Bachelor/Masters sequence introduced in 2009 as outlined in table 5 above.

Staff workload decreased dramatically with the introduction of the new curriculum. As table 6 indicates, unadjusted for increased commencing EFTSL load, the staff workload associated with lectures decreased by almost 80% from 7169 in 2008 to 1604 workload hours in 2010. Similarly, teaching coordination workloads reduced by two thirds from 3360 in 2008 to 1080 workload hours in 2010. Overall, while student commencing EFTSL load increased by 26%, staff workloads decreased by 16% from 32,498 staff workload hours in 2008 to 28,169 workload hours in 2010 – a reduction of 4329 staff workload hours. When workload is adjusted to take account of the increase in commencing EFTSL the total decrease in staff workload between 2008 and 2010 to teach the same student load was 31%.

To evaluate standardized changes in the technical efficiency of the delivery of the first year of the curriculum, an analysis of the staff workload per EFTSL was conducted. The workload per student (EFTSL) data are presented graphically in figure 3. As figure 3 indicates, in 2008 the workload per EFTSL across the 74 subjects in first year ranged from 0.6 to 19.3 hours per EFTSL for 15 credit point units with a mean of 4.5 hours per student across subjects and a standard deviation of 3.7. By contrast the range in 2010 was 1.4 to 5.8 staff hours per student with a mean of 3.3 hours per student across subjects and a standard deviation of 1.5.

Figure 3: Staff time per student for first year subjects in 2008 and 2010

Hours per student



The results indicate that both the variability and technical efficiency of teaching in the first year of the health sciences curriculum as measured by staff workloads per EFTSL had improved dramatically between 2008 and 2010. In 2008 many of the 74 subjects in first year had comparatively small enrolments and highly intensive, teaching patterns. There was a 20-fold variation in the staff hours per EFTSL to teach comparable subjects. It was common for subjects to require two or three times more teaching contact hours per student than was specified in the Faculty guidelines which were implemented as part of the Faculty reform process to specify teaching patterns for different types of subject.

By 2010, variability was much more in line with variations permitted in the Faculty guidelines. Adjusting for the total credit point load students took during a year (120) variations were down to three-fold and staff hours per EFTSL had reduced by 31% from an average of 26.5 staff hours per EFTSL per year to 18.3 staff hours per EFTSL.

The data on staff workload hours and the Faculty Workload Management Guidelines¹⁹ were used to derive an estimate of the Full Time Equivalent (FTE) staff required to teach

¹⁹ See Appendix 1

first year in the Faculty in 2008, prior to the curriculum reforms, and in 2010, the second year of the implementation of the reform programme. In 2008 it was estimated that 49.4 FTE were required to teach first year. In 2010 it was estimated that 42.8 FTE were required. However, in the intervening time from 2008 to 2010, the first year EFTSL (student load) had grown from 1226 to 1542. The estimated FTE requirement for 2010 was therefore adjusted to take account of the growth in EFTSL. It was estimated that following the introduction of the curriculum reforms, an additional 15.4 FTE would have been required to teach first year in 2010 if staff workload per EFTSL had been maintained at 2008 staff workload requirements.

An analysis of the financial impact of the estimated technical efficiency gains in direct costs associated with the introduction of curriculum reform for first year was conducted. The monetary value of the estimated reduction in academic FTE required to teach the first year of the health sciences curriculum was calculated from the average salary and salary related costs associated with employing FTE academic staff in the Faculty of Health Sciences as per the 2010 Faculty salary profile.

The average salary cost for a full time academic staff member in 2010 was \$97,307. Salary on-costs comprised leave loadings, superannuation, payroll tax and workers' compensation premium costs. These added 35% to the cost of employment. The total average cost of employing an academic staff member in the Faculty of Health Sciences in 2010 was therefore \$131,364.

The total average cost of employment for an academic staff member was applied to the 15.4 FTE reduction estimated to have resulted from the introduction of the new first year curriculum for the Faculty. It was estimated that the technical efficiency saving to the Faculty in direct costs associated with teaching the new curriculum was \$2.023m.

The curriculum's impact on student attrition and progression

It was intended that the new curriculum improve both the efficiency and effectiveness of learning. As described in the methods chapter, the impact of the curriculum on learning effectiveness was evaluated by examining student progression and attrition. Notwithstanding the limitations of attrition and progression as an indicator of effectiveness (as outlined in chapter 3), the more students progressed through the

curriculum in a timely fashion and the fewer who left the Faculty's health sciences courses, the greater the effectiveness.

The attrition and progression data for all Faculty courses in 2008, the year prior to the introduction of the curriculum reforms and 2009 the first year of the introduction of the curriculum reforms was constructed. Attrition for 2008 and 2009 was calculated as the percentage of students enrolled in one year who are not enrolled in any course at the University in the following year.

The data for enrolments, attrition and attrition rates for the Faculty of Health Sciences in 2008 and 2009 are presented in Table 7. The data indicate that the attrition rate for all courses in 2008 (22%) and 2009 (23%) the year following the introduction of the new curriculum, did not vary in any important respect across all courses in the Faculty. The attrition rate for postgraduate course work programmes increased from 36% to 40%, but these courses were not affected by the curriculum reforms. Only undergraduate curriculum and double degree programmes (which were coded as undergraduate programmes for this analysis) were affected.

Table 7: Faculty of Health Sciences EFTSL, attrition and rates by year and course level

	2008			2009		
Course enrolment	EFTSL	Attrition	% Attrition	EFTSL	Attrition	% Attrition
All courses	5982	1304	22%	6269	1430	23%
Postgraduate	1424	506	36%	1680	675	40%
Undergraduate	4160	747	18%	4214	704	17%
First Year						
Rural Health	504	101	20%	459	53	12%
Allied Health	738	100	14%	622	76	12%
Health Studies	236	56	24%	284	72	25%
Nursing & Midwifery	448	47	10%	554	42	8%
Total First Year	1926	304	16%	1919	243	13%

The attrition rate across Faculty undergraduate programmes remained approximately the same for 2008 (18%) and 2009 (17%), indicating that there was little overall impact on progression and attrition across Faculty undergraduate programmes associated with the introduction of the new curriculum. However, for 2009, the impact of the curriculum

reforms was primarily limited to first year. Consequently, a more detailed analysis of attrition for the first year of courses across the schools was conducted.

Table 7 presents aggregated data for first year across courses in the Schools of Rural Health, Allied Health, Health Studies and Nursing and Midwifery. The results indicate that across all courses, there was a decrease in attrition from 2008 (16%) to 2009 (13%) suggesting there was no adverse impact on attrition and progression across the first year of Faculty programmes associated with the introduction of the curriculum reforms.

Attrition rates for first year fell substantially for students enrolled in the School of Rural Health from 20% in 2008 to 12% in 2009. They also fell slightly for the first-year students enrolled in the Schools of Allied Health and Nursing and Midwifery. Attrition remained relatively constant at a comparatively high 25% for the School of Health Studies.

The comparatively high first year attrition rate in the School of Health Studies was associated with the generic Bachelor of Health Sciences (BHS) programme offered by the School. In the new curriculum structure, students were able to enrol in the BHS and apply to transfer to another course at the completion of first year. This provided students who had been unsuccessful in obtaining entry into highly competitive courses such as those in allied health (e.g. physiotherapy, speech pathology, occupational therapy) with an alternative entry path.

Approximately 10% of places in the second year of the professional health sciences programmes in the Faculty were filled by transfers from within the Faculty. Transfers were competitive, based on performance in first year. A significant proportion of first year transfers came from the generic BHS programme. Students in the BHS who were unsuccessful in transferring to their course of choice at the completion of first year were more likely to withdraw from study in the Faculty than other students. Consequently, the

attrition rate for the School of Health Studies approximately twice as high as that for other Schools.

The curriculum's impact on student satisfaction

Administrative data on Student Feedback on Subject Units was analysed for the common first year subjects in the new curriculum for 2009, the first year of introduction and 2011. Comparable data were available in those two years for four first year subjects (Human Biosciences A, Individual Determinants of Health, Perspectives on Health and Wellbeing, and Interprofessional Practice A) for the 12 questions in the SFSU data set.²⁰

The number of responses and the response rate for each subject in the common first year is presented in table 8 for 2009 and 2011. The response rate is acceptable for all subjects. Student feedback data were not available for second semester subjects in 2009 and the criteria for feedback in second semester 2011 were different than for first semester. The feedback criteria for first semester subjects in 2009 and 2011 were comparable.

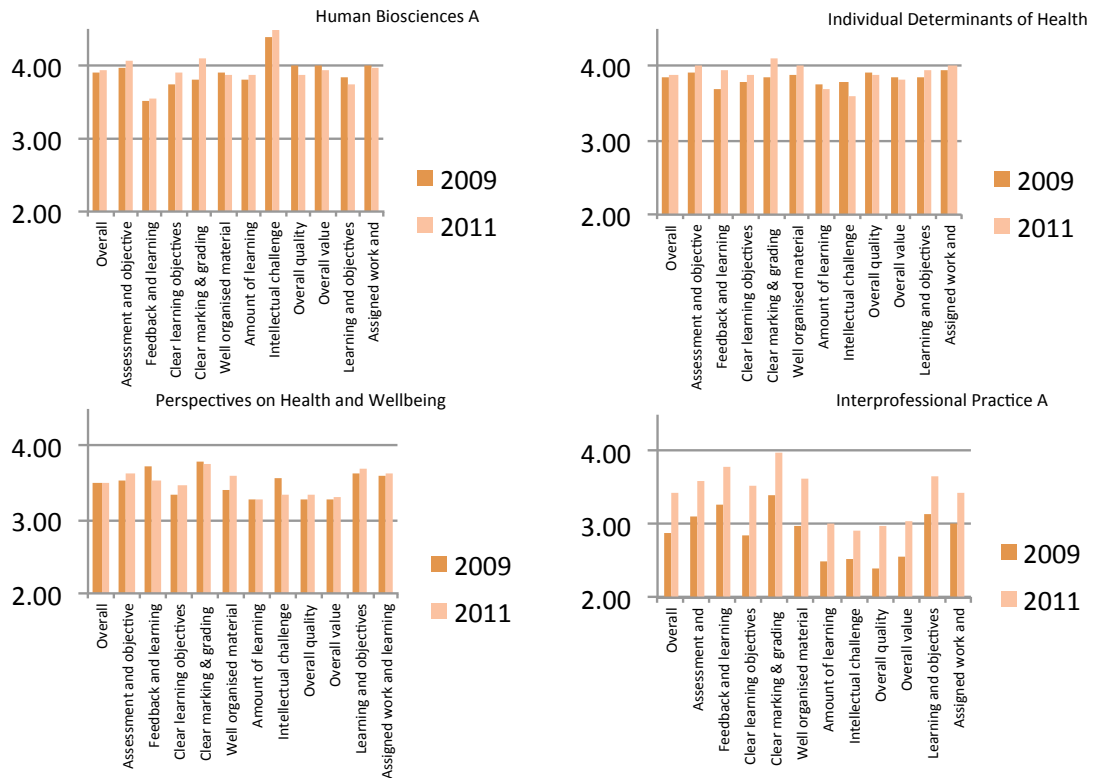
Table 8: Student satisfaction survey enrolments and response rate for common first year in 2009 and 2011

Subject	2009		2011	
	Response rate	Enrolments	Response rate	Enrolments
Human Biosciences A	78%	1028	62%	965
Interprofessional Practice A	81%	309	83%	1072
Perspectives on Health and Wellbeing	78%	972	81%	1142
Individual Determinants of Health	85%	1139	65%	1172

Figure 4 presents the average student ratings for each of student feedback criteria for the four core semester 1 first year subjects on the five point Likert scale for 2009 and 2011. The Likert scale was scored from 1-5. Higher scores represent more positive student evaluations on each of the criteria presented.

²⁰ see appendix 5

Figure 4: Student Feedback on Subject Units ratings for 2009 and 2011



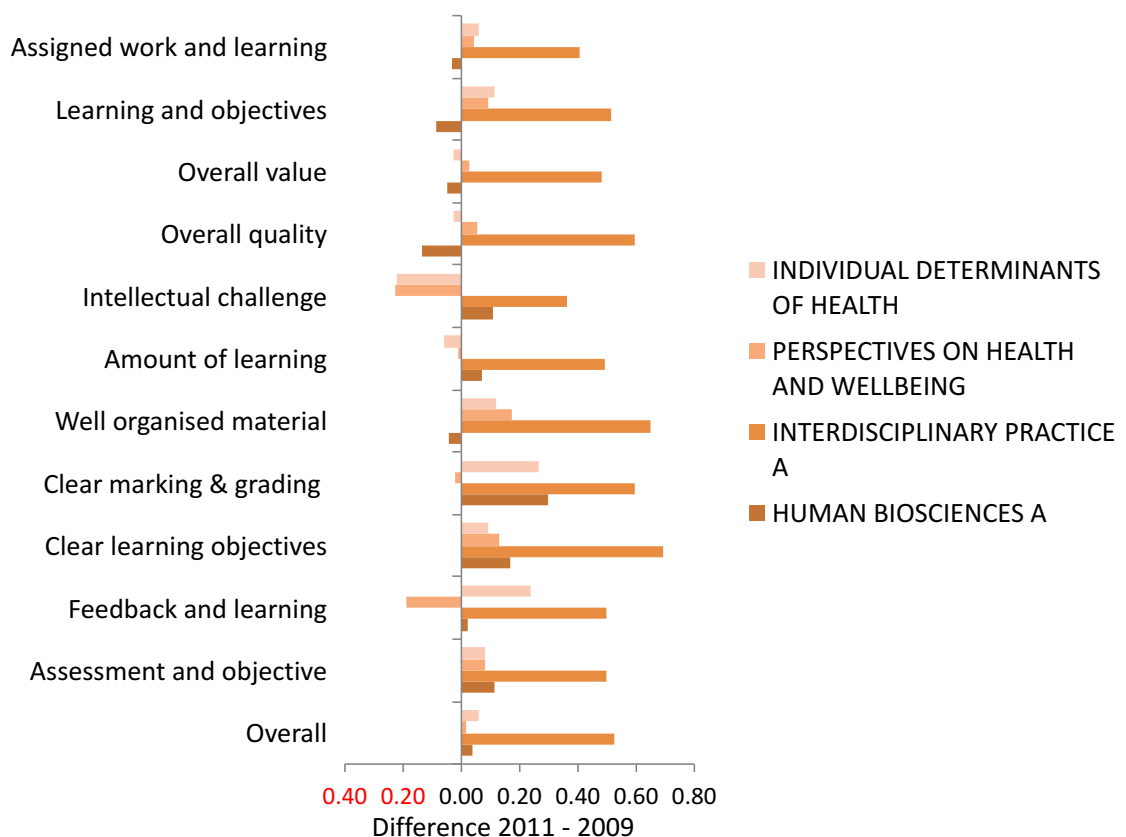
Human Biosciences A and Individual Determinants of Health were generally perceived more positively by students across all feedback criteria in both the first and third years of introduction than Perspectives of Health and Wellbeing and Interprofessional Practice A. IPA was rated below 3 overall and on 6 of the 11 feedback criteria in the first year of introduction and for 3 out of the 11 criteria in the third year. The overall quality and value, and the intellectual challenge and amount of learning were seen as only rarely or sometimes applying by students.

The Faculty policy was that a subject scoring less than 3 on any criteria needed to develop a subject improvement plan. This was required for Interprofessional Practice A in 2009. As a consequence, satisfaction improved significantly from 2009 to 2011. But student ratings of the overall quality, value, intellectual challenge and amount of learning remained problematic.

Change in ratings from 2009 to 2011 for student satisfaction on each feedback criterion are presented in Figure 5. The data indicate a consistent pattern of results for student ratings of the four core first year subjects of the health sciences curriculum which were evaluated. The third year of introduction of the new curriculum (2011) was clearly rated as more satisfactory than the first year (2009). In particular, there was greater improvement in scores for Interprofessional Practice A.

However, there were variations in the student feedback across subject criteria. The organization of material, marking and grading, learning objectives and assessment and specification of subject objectives showed the most consistent improvement.

Figure 5: Student Feedback on Subject Units change scores 2009 to 2011



Although precise comparison data were not available for the other three subjects in the first-year curriculum, in general the results for the subjects Human Biosciences B, Interprofessional Practice B and Social Determinants of Health reflected the same pattern of student feedback.

Human Biosciences B and Social Determinants of Health received generally more positive feedback than Interprofessional Practice B where again the overall quality and value of

the subject and the intellectual challenge and amount of learning were rated as less than 3 out of 5. This subject was therefore also required to produce a subject improvement plan.

The findings of the satisfaction surveys suggest that students had more positive perceptions and experiences with subjects which were based on more traditional disciplinary content. The Human Biosciences subjects largely included introductory anatomy and physiology. The Individual and Social Determinant of Health subjects were largely based on introductory health psychology and sociology respectively. Although these subjects were redeveloped and reorganised for the new curriculum, significant content from subjects which had been taught in the past was incorporated. Teaching staff responsible for these subjects had a good deal of previous experience with the content, assessment and teaching materials.

The Perspectives on Health and Wellbeing and Interprofessional Practice subjects, which received less positive evaluations from the students, were more interdisciplinary in their orientation. They were also completely new subjects which required the development of new teaching and assessment material. The leadership and staffing of these subjects was also new for the revised curriculum in these subjects.

Staff perceptions of curriculum change

Staff support for the curriculum changes that were implemented, their assessment of the change management process and their perceptions of the impact of these changes on their role and identity were important factors in evaluating the impact and success of the reform strategy. As outlined in the methods chapter, a Curriculum Reform Survey of staff was conducted in 2011 to elicit staff perceptions of the reform strategy. The results from the Faculty of Health Sciences Curriculum Reform Survey²¹ are presented in this section.

²¹ see appendix 3

Descriptive data

This section presents descriptive statistics for the survey sample and analysis of the samples representativeness of the Faculty more generally. A summary of the descriptive results for the survey are presented in Table 9.

A total of 227 staff completed the survey. This represents a response rate of 36% across the Faculty. More detailed analysis indicated that 51% of the academic staff responded but only 20% of the professional/administrative staff.

An analysis of the representativeness of the sample in relation to Faculty staffing data was completed. The sample reflects the preponderance of women staff members with 72% female and 28% male respondents. This is consistent with the overall proportion of male and female staff across the Faculty.

Table 9: Curriculum Reform Survey descriptive characteristics

Variable	N	%
<i>Responses</i>	227	100
Males	62	28
Females	165	72
Professional/Administrative	32	15
Academic	178	85
<i>Higher degree qualifications</i>		
Academic	146	82
Professional/Administrative	13	40
<i>Schools</i>		
Rural Health	53	23
Allied Health	60	26
Research	13	6
Nursing	36	16
Public Health & Human Bioscience	53	23
Faculty	12	5

Professional and administrative staff made up 15% of the respondents and academic staff 85%. These data under-represent professional and administrative staff. These staff made up 30% of the Faculty total staff with academic staff comprising 70%.

The proportion of respondents was broadly representative of the Schools in the Faculty with 26% from Allied Health, 23% from Rural Health, 23% from Public Health and Human

Biosciences, 16% from Nursing and Midwifery and 6% from the Research School. A further 5% of staff were deployed more generally in the Faculty.

Of the academic staff 82% had a higher degree (masters or doctorate). The highest qualification for the majority (60%) of professional and administrative staff was an undergraduate or secondary school qualification.

Scale measures

Standard data reduction procedures (DeVellis 2012) were employed to develop a series of scales to investigate staff perceptions of the curriculum change process and its relationships with perceptions of their own identity. Table 10 describes summary data for eight scales.

Each scale met reliability (Cronbach alpha, item-total correlations) and *apriori* content validity criteria. Apart from the initial demographic questions, the survey questions were structured as 5 point Likert items. Scales were constructed to reflect the underlying measurement parameters of the items (i.e. each has a range of between 1 and 5). Higher mean scale scores reflect more positive staff perceptions.

Table 10: Curriculum Reform Survey scale characteristics²²

Variable	N	Mean	Standard Deviation	Cronbach's Alpha
In-principle curriculum support (ICS)	215	3.80	0.57	0.80
Curriculum implementation (CI)	213	3.00	0.60	0.86
Courses support in-principle (CSI)	196	3.98	0.66	0.83
Courses implementation support (CIS)	170	3.40	0.78	0.87
Teaching practice (TP)	190	3.42	0.83	0.77
Academic identity (AI)	199	2.92	0.78	0.90
Change management (CM)	201	2.68	0.70	0.94
Morale (M)	205	2.66	0.91	0.91
Stakeholders (S)	225	3.53	0.81	0.84

Support for curriculum changes

The purpose of the In-principle Curriculum Support (ICS) scale was to measure the extent to which respondents had in-principle support for the key elements of the curriculum reforms. The ICS scale was defined by 11 items which measured in-principle support for

²² The items from the Staff Survey which made up the scales are presented in Appendix 4

the: core first year, enquiry based learning, interprofessional focus, clinical school network model, discipline mentoring, the rural health school model, graduate attributes, increases in student numbers, the bachelor/masters structure, and early exit with a bachelor degree. Items were scored on a five-point scale of agreement with a score of 5 indicating strong agreement or support for the curriculum reforms.

A reliability analysis of the ICS scale found a Cronbach's alpha of 0.80. All corrected item-total correlations were above 0.4. The ICS scale therefore has adequate content validity and scale reliability.

The mean scale score of 3.80 indicates that overall there was in-principle support for the key elements of the curriculum reform strategy. Examination of mean scores for individual items indicated that in-principle support was consistent across all elements of the new curriculum model.

The Curriculum Implementation (CI) scale complements the ICS scale. It comprises a similar set of 11 items which measured agreement with the way the key elements of the curriculum reform strategy had been implemented. The CI scale has adequate reliability with a Cronbach alpha of 0.86. As with the ICS scale all item-total correlations were above 0.4 and the scale has appropriate content validity.

The mean score of 3.00 for the CI scale indicates that there was moderate support for the way the curriculum reform strategy had been implemented. However, staff were significantly less supportive of the actual implementation of the curriculum elements compared with the in-principle support for them ($t_{\text{paired}}=18.5$, $df\ 212$, $p<0.01$). An analysis of individual elements of the new curriculum model indicated that the implementation of the common first year, the double degree (Bachelor/Masters) structure and the clinical school network model were rated less positively than other elements of the curriculum changes. These were the more complex and important elements of the changes which had been introduced.

The Course Support In-principle (CSI) scale measures in-principle support for the five new courses which were introduced as part of the curriculum reform strategy (oral health and

dentistry, dietetics, audiology, paramedics, and sports exercise and exercise physiology). The scale had appropriate content validity and relatively high reliability (Cronbach alpha 0.83). All item-total correlations exceeded 0.4.

There was strong staff support (mean 3.98) for the introduction of new courses in principle as part of the curriculum reform strategy. The strongest support was for oral health and dentistry, with positive, but less support for sports science/exercise physiology and audiology, which had not yet been introduced at the time of the survey.

The Course Implementation Support (CIS) scale complemented the CSI scale. It measured the extent to which staff supported the actual implementation of new courses. The scale had adequate reliability and validity with a Cronbach's alpha of 0.87 and all item total correlations greater than 0.4.

Again, there was less staff support for the actual implementation of new courses than support for their introduction in-principle. An examination of mean support for each course indicated little variation across courses.

The purpose of the Teaching Practice (TP) scale was to measure the extent to which respondents had incorporated key elements of the curriculum reforms in their teaching practice. The TP scale was defined by 5 survey items which investigated the extent to which the curriculum reform strategies had been implemented in practice by staff. The specific items included: enquiry based learning, interprofessional learning, team based learning and engagement with educational support staff and professional development for teaching and learning.

A reliability analysis of the TP scale found a Cronbach's Alpha of 0.77. All corrected item-total correlations were above 0.4. The TP scale therefore is reliable and has content validity. The mean score of 3.42 indicates that staff considered they had substantially incorporated elements of the curriculum reforms in their own practice. An analysis of the individual items which made up the scale indicated consistent incorporation into practice across the items.

Academic identity and morale

The Academic Identity (AI) scale measures the extent to which academics perceive their identity has been affected by the introduction of the curriculum reforms. The AI scale comprised 8 items covering professional identity and autonomy and staff identification with the Faculty and their department. The scale had *apriori* content validity and reliability (Cronbach's $\alpha=0.88$).

Overall, staff considered that the curriculum reforms had had a slightly negative effect on their professional identity (mean 2.92). In particular, an analysis of the scale items indicated staff considered the reforms had had a negative impact on their professional autonomy and their identification with the Faculty. They felt more positive about their identification with their department.

The 7 item Morale (M) scale measured staff perceptions of optimism about the Faculty's direction, their personal future in the Faculty, and the extent to which they thought staff felt valued and recognised. The items form a reliable scale with a Cronbach's α of 0.91. The items have content validity.

The mean of 2.66 indicates that morale across the Faculty was low. There was considerable variation in mean scores across the scale items. The lowest scores were concentrated on the Faculty's direction at the time of the survey. There was more optimism about the medium to longer term (5 years). Overall, staff had a neutral perception of the likelihood that the reforms would produce better outcomes for students and a more negative perception of the outcomes for staff.

Stakeholders

Staff were also asked about the extent to which they thought University and Faculty leaders should have a major role in decisions about teaching content and delivery and research priorities and projects. The four item Stakeholder (S) scale had a Cronbach's α of 0.84 with all item-total correlations above 0.4.

The mean S scale score of 3.53 indicated that there was support for University and Faculty leader involvement in teaching and research decisions. However, an examination of individual stakeholder items indicated that there was much stronger support for local discipline and departmental involvement in decision making than for Faculty and University leaders.

Change management

The survey included a series of items on change management. These included: satisfaction with the process for subject and course review, feedback and management of teaching performance, input into decision making about curriculum, workload allocations, and communication, consultation and recognition for teaching contributions.

A Change Management (CM) scale was constructed to assess overall staff perceptions of the change management process for the curriculum reform strategy. The scale had adequate reliability (Cronbach's alpha 0.94 with all item-total correlations greater than 0.4).

The CM scale mean of 2.68 indicates that staff were generally dissatisfied with the change management process for the curriculum reform strategy. An analysis of individual items indicated they were most dissatisfied with the resources (time and financial support) which had been made available to support the curriculum reform process. They were more satisfied with data on teaching performance and opportunities for professional development. They were more satisfied with local departmental processes than with Faculty level support for curriculum reform.

Factors influencing staff perceptions of curriculum change

An analysis of the factors that influenced staff support for curriculum change was conducted. As a first step, bivariate analyses of the relationships between demographic variables and scale scores were conducted. Demographic variables include were: gender; academic and professional/administrative classification; length of university service; applied and basic discipline orientation, and school.

In general, there were few differences for gender and professional/administrative versus academic staff on the mean scores for scale measures reported above. Consequently, further analyses were combined for gender and professional/academic classifications.

Length of service at La Trobe and in the university sector was generally weakly, but significantly negatively correlated with Academic Identity ($r=-0.2$, $p<0.01$), Morale ($r=-0.18$, $p<0.01$) and Curriculum Implementation ($r=-0.16$, $p<0.05$). Those who had longer university service were less likely to support curriculum implementation and were more likely to report lower morale and perceive curriculum reform as having more negative impact on their academic identity.

Academic staff were classified as having either a professional or discipline orientation by categorising all staff with professional or clinical discipline backgrounds as professional and all staff with bioscience or public health backgrounds as discipline oriented.

Analysis of mean differences for In-principle Curriculum Support, Curriculum Implementation, Courses Support, Courses Implementation Support, Teaching Practice, Academic Identity, Change Management, Morale and Stakeholders were conducted. The results indicated that there were no differences between staff with a professional and discipline background.

An analysis for mean differences between schools on the scale variables was conducted. There were no significant differences on any scale scores between Faculty schools.

The bivariate relationships between the various scales was investigated by conducting bivariate correlational analyses of the scales with one another. The outcomes of this analysis are presented in Table 11

Table 11: Curriculum Reform Survey inter scale correlations

	Morale	Change Management	Stake holders	Academic Identity	Teaching practice	Course Implementation	Course Support	Curriculum Implementation
Change Management	0.7**							
Stakeholders	0.3**	0.3**						
Academic Identity	0.7**	0.6**	0.3**					
Teaching practice	0.2**	0.2**	0.2**	0.3**				
Course Implementation	0.3**	0.2**	0.2**	0.3**	0.1			
Course Support	0.2**	0.1**	0.2	0.2**	0.3**	0.5**		
Curriculum Implementation	0.6**	0.6**	0.3**	0.6**	0.3**	0.4**	0.2*	
Curriculum Support	0.3**	0.3**	0.4**	0.4**	0.4**	0.2**	0.4**	0.6**

**p<0.01, *p<0.05

The analysis indicates that there are moderate inter-correlations between most of the scale variables. There were high correlations between Curriculum Implementation and Academic Identity, Change Management and Morale. Staff who rated implementation more highly had a more positive view of the impact of change on their academic identity, the change management process and Faculty morale. Not surprisingly, morale and academic identity were also highly correlated. Those with more positive views of Faculty morale had a more positive view of the impact of curriculum reform on their academic identity.

Multivariate analyses were conducted to explore the factors which affected the extent to which staff supported curriculum reform in principle and in practice and the factors which were associated with staff morale and perceptions of the change management process. A series of linear multiple regression analyses were conducted for this purpose. The model tested the relationship between independent predictors (Time at University, Discipline

Orientation (applied vs basic), Staff Classification (academic vs professional) and Academic Identity) and dependent variables (In-principle Curriculum Support Curriculum Implementation, Courses Support In-principle, Courses Implementation Support, Teaching Practice, Morale and Change Management)

Table 12: Factors associated with support for the curriculum reforms

Dependent Variable	R ²	F	Predictors
In-principle Curriculum support	0.30	12.24***	Academic Identity** Stakeholders***
Curriculum implementation	0.47	25.53***	Academic Identity*** Stakeholders*
Courses Support In principle	0.08	2.47 NS	-
Courses Implementation	0.12	2.90*	Academic Identity**
Teaching Practice	0.12	3.70**	Academic Identity**
Morale	0.54	31.9***	Academic Identity**
Change management			Academic Identity*** Stakeholders*

*** p<0.001, ** p<0.01, * p<0.05, NS=not significant

The regression analyses indicate that only Academic Identity and Stakeholders variables explain significant proportions of the variance in the dependent variables, although Discipline Orientation approached significance for the prediction of In-principle Curriculum Support. The more strongly staff thought that the curriculum changes had enhanced their professional identity and the more they supported Faculty and University leaders' involvement in curriculum reform, the more likely they were to support the curriculum reform process.

Qualitative analysis of staff comments

The staff survey provided staff with the opportunity to provide open ended comments on the curriculum reforms, the way they been introduced and the impact of the changes on their role and identity. A thematic analysis of qualitative comments was conducted by grouping staff comments together based on similar content and then distilling common themes. Indicative statements have been presented verbatim to highlight each theme (Gibbs 2007).

Concerns about workload, support and the pace of change

While there was support for the direction of curriculum change staff were much more hostile about the way the curriculum had been implemented and supported.

A number of comments indicated that staff 'loved their jobs' but felt overworked and overwhelmed by the level and pace of change which had been introduced.

I think the new curriculum changes are good in principle, but they have been brutal on lecturing staff. Many staff are highly stressed and fatigued by the changes. I believe that the direct workload with subject management is currently too high and staff involved in subject coordination are extremely over-worked.²³

A number of staff complained of inadequate support, coupled with rapid change, had led to 'change fatigue'. This included lack of administrative support for academic staff. There were concerns that workloads were unequally distributed to those who were committed to change. Some thought that this would lead to a decrease in the quality of teaching.

I appreciate the circumstances within the Faculty at present with budget concerns, but we are burnt out and the end is still not here.

Staff also felt that increased workload had impacted on their capacity to conduct research.

Many staff really want the ability to be able to get their research going yet have for too long been given too much of the responsibility for teaching and all this change management/implementation.

Feeling under-valued and overly controlled

There were a number of comments that indicated that staff did not feel valued and that they had not been sufficiently included in the development of the curriculum.

²³ Identifying respondent characteristics for qualitative comments are not reported to ensure anonymity is protected.

I sincerely hope that if many survey respondents mention "overwork" and "undervaluing" a genuine effort will be made to address this.

Some respondents wanted more autonomy and control over curriculum for Schools, but there was recognition that change was complex and difficult to manage.

More trust and autonomy for heads of school. Schools should be able to work within a budget envelope to make things work in the best way for them. There is currently interference and insufficient autonomy and a tendency for micro management. Saying that, the dean is clever and has vision. We need a more flexible EBA [Enterprise Bargaining Agreement] so we can reward good staff and dispense, sensitively, with 'dead wood'.

There were concerns that problems with the pace of change and under resourcing were leading to staff stress and low morale.

The Health Science Faculty at La Trobe should be one of the best in Australia but morale I feel is at an all time low. Everyone is stressed. The curriculum was introduced with limited consultation with academic staff.

Blaming the Faculty and managerialism

A number of respondents saw Faculty leadership and management as the problem.

Management of curriculum re-design has been woefully inadequate at a Faculty level. Although some additional resourcing was offered, the capacity to take this up was limited, with few real options for backfilling teaching, and limitations placed on what would be supported.

A one-size fits all approach to managing differing departments across the faculty fails to recognise the unique learning needs of students across these discipline groups. Within the department level, the opportunity to work together to develop a world-class standard curriculum has been fantastic, but it comes at SIGNIFICANT cost - to family life, health (stress and fatigue), loss of research productivity.

Some staff simply disagreed with the overall approach to change and saw it part of the wider problem of managerialism being introduced into the University environment.

Generally it feels like the neo-liberal managerial framework has taken over the university and this needs to be brought back into balance with the attitudes roles and resources for teaching staff who are doing most of the 'on the ground' work – if staff are not able to teach to the best of their ability then there is a lowering of standards in teaching, ditto in the delivery of courses and word gets around ... no students!

The opportunity to innovate and lead

Some staff saw the curriculum reforms as a positive step that would position La Trobe as a leader in health care. They valued the opportunity to take on a challenge and to be involved in a stimulating major change programme. They saw the curriculum reforms as an opportunity for innovation to improve outcomes for students and professional practice.

La Trobe is well position to be a leader within health care. We need encouragement and support to take this opportunity. I general support the introduction of the common first year and enquiry based learning... Keep up the hard work, I understand that everyone does their best.

There was support for enquiry based learning and the common first year, but with caveats. There were a number of concerns about the extent and the pace of change.

I don't disagree with EBL but I think the curriculum has moved too far along the EBL continuum and I'm not convinced that we are delivering the 'best' curriculum we could. An ideal curriculum would provide a range of teaching and learning strategies and acknowledge the diversity of learning styles of students (and staff).

There were also concerns that the implementation was not working as well as it should for students.

We need to seriously address the current level of disengagement of students with the CFY [Common First Year] - changing the name won't make the students feel any better about it. It sets a pattern of behaviour that is difficult to turn around in subsequent years. For many students it is too hard and for others lacks challenge (and therefore makes the transition to year 2 too hard). Anecdotally, Year 1 students struggle to relate to the purpose of the CFY programme and feel frustrated about the lack of identification with their primary discipline

Threats to academic identity

Qualitative comments generally indicated that staff felt the centralised process of curriculum reform had reduced their autonomy and the capacity to make curriculum related decisions. They viewed these outcomes negatively and saw it as devaluing their role as academics. As one comment put it:

My role has changed over the last few years as change has been implemented. I do not mind change at all if it is for the positive, however when change means extra steps in my job that previously did not exist and they complicate processes rather than simplify them then I do not feel that change is for the better.

Another comment put it succinctly:

Negative responses are all to do with lack of autonomy. Very centralised control is held at faculty level.

Loss of autonomy was closely associated with comments that the curriculum reform was initiated as a Faculty process rather than by staff and discipline and professionally focused departments.

The faculty seems far removed and disinterested in what we do every day in the department. Directions come from above with little recognition of the extent of current academic work and the time dedicated to delivering high quality learning and teaching programmes to large numbers of undergraduate students who have high expectations of coming into a (Bachelor/Master) degree (as they should).

Staff were also concerned that the pace and extent of change and that lack of resources would impact on the quality of their discipline and the quality of their work.

We are proud of our Discipline, this Faculty and the University, but we cannot give our best work if we simply do not have the support to do so. I am concerned that the end result will be a decrease in the quality of teaching and research as staff are stretched to their limit.

There were also some comments from staff on regional campuses that they wanted greater autonomy from the influence of the larger metropolitan campus.

Return control and power over course development, content and delivery to regional campuses. It is possible to teach the same course with appropriate independence in delivery.

Overwhelmingly, staff saw the positive aspects of their role as focused on the involvement with their departmental colleagues. Collegiality and the local leadership of heads of department and schools were strongly valued. Indicatively, one comment put this way

Working within our department is excellent. We have a great team who works hard and encourages each other.

By contrast the role of the Faculty and central leadership came in for a good deal of criticism. Faculty leadership was seen as distant from the issues faced by academic staff in the implementation of change. A number of comments indicated that staff felt under stress and that there was insufficient communication and consultation on change.

Part III

Discussion and Conclusions

Chapter 7: Summary and discussion of findings

This chapter first summarizes and discusses the extent to which the curriculum reforms were implemented and the impact of the reforms on teaching efficiency, student attrition, progression and satisfaction and staff perceptions of their roles.

The case study reported here investigated the impact of a curriculum reform strategy on teaching efficiency, student satisfaction, student attrition, and staff perceptions of their role and their perceptions about the directions and change process adopted. The strategy was informed by New Public Management principles and included the standardisation of resource allocation for teaching subjects, evidence based curriculum design, the specification of learning objectives and graduate attributes, and systematic, course and subject peer review processes to improve overall organisational teaching and learning performance.

It was anticipated that the introduction of a managerial approach to curriculum design and teaching would disrupt the desire for autonomy and collegiate decision making amongst academic staff leading to resistance and dissatisfaction. An organisational change management strategy was designed to overcome these issues.

The research investigated:

- whether the reform strategy was implemented as planned
- whether teaching efficiency and effectiveness improved
- staff perceptions of the reform strategy and the process of change
- the impact of reform on staff perceptions of their role and identity

It was anticipated that the curriculum reform strategy would be implemented as planned, that teaching efficiency would be improved, student satisfaction and student attrition and progression would be maintained and that staff would support the reform strategy. It was also anticipated that once the reforms had been successfully implemented, staff would be satisfied with the impact of the reforms on their autonomy and professional identity.

Additionally, the reforms were intended to ensure that barriers to increased growth in student load (enrolments) associated with limitations in the availability of clinical

placements were removed and that they would facilitate the introduction of new courses. Overall these changes aimed to significantly increase the number students in the Faculty of Health Sciences to meet University growth targets.

Were the curriculum reforms implemented as planned?

As Stake (2004) and Stufflebeam and Madaus (2000) have pointed out if change is not implemented as planned, desired impact and outcomes are unlikely to be achieved. In this case three years after their introduction the curriculum changes had been substantially implemented as planned.

Enquiry based learning and interprofessional practice had been generally incorporated into the common first year and were progressively being incorporated into the later years of the curriculum. The new Bachelor/Masters structure and pathways, including the transfers from the generalist Bachelor of Health Science programme to professional degrees at the end of first year had been fully implemented. Graduate attributes and discipline mentoring had been established for all degree programmes. Academic staff reported they and their colleagues had incorporated enquiry based learning, interprofessional practice and team based learning into their own practice. New clinical school networks had been developed and a major capital development process had been initiated to build new university facilities on site with hospitals and health services across metropolitan and regional Victoria.

Some compromises were made during implementation. Initially all didactic content was to be presented online as short written or video presentations with formative assessment and immediate feedback. The intent was that online material would support group and tutorial discussion and the completion of enquiry based learning tasks (scenarios). However, it became impractical to develop all the online content in the time available and staff were concerned about the loss of their lecturing roles in workload allocations. Lectures were consequently retained, in part, as a support to the enquiry based learning for some subjects. It was intended that that they would be phased out over time but this had not eventuated by year three.

There was more variability in the use of lectures and enquiry based learning in the later years of the programs. There was less central (Faculty) control over the detailed content

of these subjects, although there was a schedule for the Faculty teaching and learning unit to review and work with staff on every unit in the curriculum.

Did teaching effectiveness improve?

Student attrition and progression were used to evaluate how effectively the new curriculum was in achieving learning outcomes. Student attrition and progression through undergraduate courses in the Faculty of Health Sciences were not affected by the curriculum reforms over the two-year period during which attrition was monitored. Attrition rates in first year and for the undergraduate degrees as a group remained relatively constant. If anything, there was a slight fall in attrition in first year.

Attrition rates improved in the Rural Health and Allied Health Schools. A number of new high demand professional degree programmes were introduced in these Schools (e.g. dentistry). Attrition was lower in these degrees. The attrition rate in the School of Nursing remained relatively constant.

The attrition rate in the School of Health Studies was high and increased slightly over the evaluation period. The generalist Bachelor of Health Science, for which the School had responsibility, was the main reason for the high attrition rate. A significant proportion of students in this degree who completed the common first year and were unsuccessful in transferring to a professional degree in second year subsequently withdrew from the degree.

As indicated in chapter 3, attrition and progression are imperfect measures of learning effectiveness. While attrition and progression were consistent across the three years of the case study, the question remains: was the new curriculum an improvement on the old curriculum in terms of learning outcomes?

Arguably, course and subject outcomes were much more explicit. Graduate attributes for each course had been mapped to subject outcomes and assessment methods had been designed to determine whether outcomes had been met. But direct comparisons between standards in the old and the new curriculum were not possible. Nor were graduate attributes and specific subject outcomes explicitly validated against professional and

clinical outcomes in applied (health service) settings. This was impractical within the time and resources of the implementation programme.

The broader importance for attrition for the Faculty

The attrition rate in the Bachelor of Health Science was an important issue for the Faculty. Significant numbers of successful students leaving the programme at the end of first year indicated that their expectations and aspirations had not been met. This in itself was undesirable. But more broadly it also put at risk future demand for Faculty programmes.

In the Australian university system, *previous* demand for a course relative to the number of places available heavily influences *current* student preferences. Students generally gain competitive entry to courses based on their Australian Tertiary Admission Rank (ATAR)²⁴. Where course demand is high relative to the number of places available, ATARs required to gain entry are higher. ATARs for entry are published annually for each course. Consequently, for students in the process of choosing a course, the previous year's course ATARs are an indicator of course desirability.

Universities therefore try to increase current ATARs for course entry to increase future demand. Obviously ATARs increase if the availability of places is reduced, but in the Australian demand driven system where universities are free to determine how many places they offer in each course, the risk is that competitors will offer additional places thereby diverting demand and reducing course ATARs.²⁵

Universities augment competitive entry based on ATARs with other pathways so that their published ATARs for each course remain as high as possible²⁶. These include direct entry based on other criteria than ATARs (e.g. interviews, written statements, references and testimonials, standardised testing) and internal transfers where students must first enrol

²⁴ The ATAR is the relative percentage rank a student achieves in relation to the school leaver peers between 30% and 99.95%. A score of 90% indicates a student performed better than 90% of their peers on the secondary school leaving assessment.

²⁵ In the State of Victoria, each year students enter their preferences for the courses that are available and each university submits the number of places it is offering for each course. The Victorian Tertiary Admissions Centre then models the likely ATAR that would be required for entry into each course and provides that information to each university for the courses they are offering. Universities are then permitted to alter the number of places they are offering to achieve their desired ATAR level and the model is run again. This iterative process is repeated until places and ATAR levels stabilise. Offers are then made to students. Not all places are filled in the first round and further rounds of offers are made to students to once the results of the first round are known.

²⁶ At the time, ATARs were not published for direct entry or degree transfers.

in a generalist programme before transferring to a professional programme. Universities may also apply bonus points (ranks) to ATARs for students from disadvantaged backgrounds (see Norton and Cakitaki 2016).

The La Trobe Health Sciences model was designed to meet three partially competing objectives. First it provided students with flexible entry pathways to professional health sciences programmes by allowing entry both at the end of secondary school and first year university. Second it sought to keep ATAR entry levels and therefore student demand as high as possible. Third the intention was to grow the overall number of course places - which would normally result in a fall in ATARs.

The introduction of common first year and internal transfers from the generalist Bachelor of Health Sciences to professional degrees were critical in resolving the conflict between these objectives. Potentially ATAR based entry to professional degrees could be constrained keeping ATARs (and future demand) as high as possible, while maintaining or growing course numbers in professional programmes through transfers from the Bachelor of Health Science.

The original intent had been to increase the proportion of students who could transfer from the Bachelor of Health Science to a professional degree from around 10% to 30% at the end of first year as the curriculum reforms matured. The availability of places for students straight out of secondary school for high demand professional degrees (e.g. physiotherapy, speech pathology, dietetics) would then have decreased. When this happened, it is likely ATARs and demand for these courses would then rise for secondary students. Were ATARs to increase for these courses, the option to transfer into them from the generalist Bachelor of Health Science at the end of the common first year would also become more attractive, thereby leading to increased ATARs for this degree as well.

However, although progression and attrition were not adversely affected by the introduction of the common first year, transfers to professional degrees from the Bachelor of Health Science were not increased at the end of first year. In part, this decision reflected 'change fatigue'. The common first year was still seen as 'bedding down' and curriculum changes were only just being implemented in the later years of courses. Additionally, the clinical school model had not yet been implemented and it was not clear that clinical

places would have been available if existing professional course places had been expanded dramatically. Staff were not keen to implement further significant change to degree pathways. Finally, the increased student load associated with introduction of new programmes (e.g. dietetics, audiology, sports science, dentistry, paramedics) reduced the pressure to expand existing course load targets to meet University targets.

Some commentators (e.g. Marginson 2006) have argued that the competitive and privatised market elements of NPM have not been widely introduced in higher education. In Australia, while the introduction of NPM has not yet resulted in widespread institutional privatisation, nor fully privatised funding of higher education by students, competition for student enrolments amongst institutions has, however, increased dramatically.

The management of demand, attrition and progression in this case study illustrate how the Australian competitive demand driven system influences institutional decision making to maintain student load and revenue in a much more competitive environment. This has led to criticisms of gaming, lack of transparency and declining quality (e.g. Bagshaw 2016).

There is little doubt that universities have used a variety of strategies to increase their student load and revenue while maintaining or increasing their published ATARs. The effects of this strategy are complex. On the plus side, less prepared students now have much more opportunity to participate in higher education and there is little evidence that this has come at the cost of declining graduate outcomes (e.g. Norton 2013). But attrition rates are higher for students with lower ATARs (Norton and Cakitaki 2016) and institutions might be optimising revenue by admitting inadequately prepared students without appropriately supporting them. On the other hand, ATARs are not the only or the best method of selecting capable students for entry into higher education programmes.

Progression, retention and attrition are also imperfect measures of learning outcomes for the evaluating the effectiveness of teaching and learning. The principle purpose of professional education in health sciences is to produce graduates ready and able to provide high quality health services. Although health science programmes are generally externally accredited, expected competencies and outcomes remain largely a matter of peer review by professional bodies. Beyond peer review there is little systematic

investigation of the extent to which graduates are well prepared for their roles in the workforce.

The introduction of NPM in Australia has focused on increasing participation rates in higher education by deregulation and competition for enrolments. There has been little discussion or detailed consideration of the relationship between graduate outcomes and employment. There are indications both that increasingly graduates are finding it difficult to gain suitable employment for their qualifications and that those that do are not well prepared for professional roles by their university programs (Oliver, Freeman et al. 2014, Australian Council on Educational Research 2016). Broader concerns are now emerging that competition and expansion of university programs may be producing too many graduates (Ryan-Smith 2015). It is likely these issues will become more central to higher education policy in Australia in the near future.

In this study, while graduate attributes and expected outcomes were extensively mapped to subjects in the new curriculum, assessment methods and criteria changed over time and varied across different subjects. The criteria for determining student success and progression were not constant and the assessment of learning effectiveness over time was therefore problematic. Nor was there any analysis of the specific employment attributes required for health science graduates (apart from the normal processes of course accreditation). Nevertheless, introducing an explicit focus on outcomes, mapping them to subject assessment and then monitoring progression, retention and attrition introduced a much more reflexive and critical approach to teaching and learning across the curriculum.

Did teaching efficiency improve?

It is clear that the curriculum reforms led to an important improvement in teaching efficiency. This is, of course, a central focus of NPM. The main indicator of improvement in efficiency was staff time required to teach the first year of the new curriculum. Over a two-year period, staff hours per student required to teach the first-year curriculum fell dramatically

Teaching efficiency improved by reducing the number of subjects taught and standardizing teaching approaches and student workload rules. The introduction of

Enquiry Based Learning saw a dramatic fall in lecturing hours while small group teaching hours were maintained. Lecturing hours were reduced by aggregating students into larger groups and replacing lectures with online content and instruction. The reduced number of subjects also meant there was a significant fall in the staff workload required for subject coordination.

Over the three-year evaluation period the introduction of new, and expansion of existing high demand professional courses that shared the common first year saw a significant increase in student load in first year. Efficiency improvements permitted growth in student load to occur without needing to employ more staff.

As noted above, the changed degree structure allowed students to enrol in a generalist Bachelor of Health Science degree from which they could transfer to professional Bachelors/Master degree at the end of first year, dependent on their academic performance. This resulted in a significant increase in demand for the generalist Bachelor of Health Sciences degree. It also meant that students in the professional degree programmes who were unable to meet the clinical requirements for the programme or who chose to, could exit their professional degree at the end of three years with a generalist Bachelor of Health Science qualification.

In combination with the new Bachelor/Master degree structure, the common first year also made it possible to introduce a range of new professional degrees with significantly reduced risk and improvements in teaching efficiency. Effectively the demand risk for any one course was pooled across all courses in first year. If student demand in first year for any course was low making later years unviable, load for that course could be strengthened by encouraging internal transfers from the generic Bachelor of Health Science programme at the end of first year. New courses could be staffed at the same time as they commenced, giving new staff a year to prepare while students undertook the common first year. This significantly reduced the cost of starting new professional degree programmes.

The curriculum reforms also meant courses that would otherwise not have been viable could be conducted on regional (country) campuses where demand was comparatively

low due to 'thin markets'.²⁷ These students were significantly more disadvantaged than those from metropolitan settings. This was, therefore, also an important contribution to the University and Faculty equity targets.

The common first year and new degree pathways allowed students at regional campuses to study together across a range of professional programmes in first year and then transfer to a larger regional campus (Bendigo) at the end of first year for the next three semesters.²⁸ They could then complete their clinical training in the last part of the Masters component of the degree back at their home campus if they so chose. This initiative improved access to health sciences programmes for regional students, reduced their cost of study and improved the likelihood that these students would take up professional positions in regional settings where there were workforce shortages at the completion of their professional education.

The improvements in teaching efficiency, new degree pathways and increased demand from new courses saw a 30% increase in student load for the Faculty of Health Science from 2007 to 2012. This growth was achieved within the Faculty's normal budget allocation. New initiatives were funded from internal savings and no additional infrastructure or start-up funding was provided.

What was the impact on student satisfaction?

Student satisfaction with the new curriculum was generally acceptable and improved significantly over the first three years of its introduction. Over that time, staff became progressively more comfortable with the use of new teaching techniques, technology and infrastructure. Course and subject organisation and coordination improved and a number of problems were identified and resolved.

²⁷ The University's Mildura, Shepparton and Wodonga campuses service communities of significantly less than 100,000 people. These areas are also educationally disadvantaged with below average higher education participation rates. However, they are more than two hours travel time from Melbourne. Commuting for study is therefore impractical.

²⁸ Aggregating students on the Bendigo campus ensured all courses remained viable for the specialist teaching required for each discipline after first year. Transfers were not permitted to the Melbourne campus to prevent the Bendigo campus student load becoming unsustainable. This model was supported by significant capital works to improve teaching and preclinical facilities and student accommodation.

Some elements of the new curriculum proved highly successful, in particular, the use of scenario (problem) based learning, the replacement of lectures with online content, the introduction of structured study groups as part of the tutorial programme and the use of purpose built teaching and study spaces²⁹. Other aspects were modified with experience, most notably the use of online student feedback in study groups.

Initially, students provided online performance feedback to one another in real time as part of the introduction of study groups. Although guidelines and discussion of how to provide constructive peer feedback were part of the formal teaching programme on team based learning, a significant proportion of student feedback was nevertheless highly problematic (e.g. one student described another as a 'fat, lazy cow' who made no contribution to work of the study group). Online feedback on performance was therefore discontinued after the first semester of the new curriculum in favour of structured group based discussion in tutorial groups.

Subjects with a strong discipline basis in biology (Human Biology) and psychology (Individual Determinants of Health) were rated more positively than interdisciplinary subjects (Perspectives on Health and Wellbeing, Interprofessional Practice). There was much less experience of curriculum development and teaching in these subjects. First year students were dissatisfied with interprofessional practice because they were introduced to generalised, abstract concepts of team work and practice at a time they had little direct experience of clinical problems and practice. Subsequent curriculum revisions introduced much more concrete clinical problems issues more closely associated scenarios (problems) used in other subjects. While satisfaction with these subjects improved with experience, the development of interdisciplinary curriculum was more difficult than originally thought and remained an ongoing area for development.

Initially, the subject Perspectives on Health and Wellbeing attempted to introduce a very general and wide ranging social and environmental view of the determinants of health and wellbeing. Although the student ratings of the subject were satisfactory, again for first year students more specific content and scenarios were progressively introduced. In

²⁹ A suite of tutorial rooms were developed with smart boards, modular furniture, laptop connectivity and breakout spaces. The library was redeveloped to allow study groups to use special pods where they could connect laptops to display screens. A set of lecture theatres were modified to allow simultaneous live streaming across five campuses.

general students were more satisfied when the learning content was more clearly connected to clinical issues and practice and instructional materials and processes were better planned, paced and sequenced.

Course and subject performance were systematically reviewed at School and Faculty level. Course and subject coordinators were expected to review each subject with the teaching team and consider options for improvement at the completion of every teaching cycle. Overtime, staff became more used to using systematic information on student experience and performance in subjects to modify subject content and teaching educational processes.

Student satisfaction surveys are an efficient but limited strategy for assessing the overall experience of students undertaking subjects and courses. More in depth, qualitative techniques (e.g. interviews, focus group discussions) would provide richer data. These strategies were not generally used by the University at the time and were, therefore, not implemented as part of the Faculty evaluation of the curriculum reforms.

What were staff perceptions of the reforms and change process?

While staff generally supported the idea of curriculum reform to improve the quality, outcomes and efficiency health science teaching, they were critical of the process of change and the actual implementation of the curriculum changes. There was strong support for the introduction of new programmes, particularly oral health (dentistry), dietetics and paramedical studies and moderate support for increasing the Faculty student load. There was moderate support for introduction of the common first year, enquiry based learning, graduate attributes, the new degree structure, clinical schools, interprofessional learning and discipline mentoring.

On the other hand, staff were generally dissatisfied with the process of change and the way the curriculum reforms had been implemented. They felt overworked, that they needed more support, and that their efforts were not sufficiently recognised and valued. For many the changes had a negative effect on their professional identity and autonomy.

Impact on staff identity

While staff remained committed to their disciplines and professions, and were generally positive about their future in the Faculty, they identified much more strongly with their department or school than with the Faculty or the University. As a result, they were much less supportive of Faculty or University decision making about educational change than they were about local Department or School decisions. Although they could see the changes could lead to better outcomes for students, they were much less optimistic about their impact on staff.

What factors adversely influenced staff perceptions

Some staff were more supportive of change than others. The length of time staff had been employed at university and the strength of their identification with their department or discipline were important influences on their support or opposition to the changes that were introduced.

As outlined in chapter 4 in Australia allied health and nursing degrees have only been delivered in university settings comparatively recently. Many of the staff had started their academic careers at the Faculty's predecessor institution, Lincoln Institute, which had been part of the College of Advanced Education sector. As a result, many had little history or capacity for conducting research and only limited experience of University academic life.

For staff with a history in the College of Advanced Education sector, identities were more closely tied to the teaching and professional (clinical) programme than to research. Consequently, it is likely that changes to the curriculum, teaching and learning process and clinical placements were perceived as reducing their autonomy and threatening their academic identity more than might have been the case if they had been more research active.

During the period of the curriculum reform strategy the University and the Faculty also experienced a set of major changes unrelated to the curriculum reforms. A new Vice Chancellor was appointed and a much more centralised governance and administration model was introduced. This led to key changes to budgeting and administrative arrangements.

Where the Faculty had previously had a one line budget that could be allocated internally with internal savings being carried forward from year to year, a new budget allocation model and detailed budget planning and central expenditure controls were introduced. This led both to a significant decrease in the Faculty budget, much greater constraints over internal allocations and the loss of all internally generated surpluses. Consequently, there was much less capacity to support major change initiatives, like the curriculum reform strategy, internally.

At the same time, the University became concerned about its comparative domestic and international ranking. Research performance therefore became a much more prominent priority. A range of research funding and performance incentives tied to Faculty budgets were introduced. Consistent with the national research performance measurement scheme, these incentives favoured traditional research metrics (e.g. publications, citations), rather than applied impact measures. This significantly disadvantaged the professionally focused Faculties of Health Science and Business Economics and Law.

Where the Faculty's initiatives had been a strongly supported as major initiative by the University's senior management team when they were first introduced, they became a secondary priority. Additionally, the University centralised responsibility for curriculum reform as part of the revised organisational and administrative arrangements (the Design for Learning initiative described in chapter 4). The Faculty reforms were consistent with and strongly influenced the University wide directions for curriculum change, nevertheless, the changed governance arrangements led to some duplication and fragmentation. In combination, the University's leadership, budgetary, administrative and research policy changes made it much more difficult to manage and support the curriculum reform strategy.

The overall outcomes of the curriculum reform process described here illustrate the issues inherent in applying NPM in higher education settings (see Deem, Hillyard et al. 2007, de Boer, Enders et al. 2009, Broucker, De Wit et al. 2015, Broucker, De Wit et al. 2015). NPM can improve the efficiency, effectiveness and experience of teaching and learning in higher education. But the focus on functional reorganisation; systematic planning, monitoring and review, and performance management to drive effectiveness, efficiency and student satisfaction clashes with the existing collegiate and discipline/profession

based culture (Bergquist 1992, Bergquist and Pawlak 2008). In this case, change management strategies to address these issues were only partially effective (cf. Kanter 1991, Kotter 1995). Academic staff often saw their autonomy and professional or discipline identities as being eroded.

This study also illustrated how broader changes across the university, beyond the Faculty of Health Science, produced a layering of differing and sometimes competing management strategies and priorities for teaching and research – problems that are, as Deem, Hillyard et al. (2007) point out, inherent in the ‘hybridization’ of university culture and governance strategies. While NPM is the dominant narrative for university managerialism, in practice collegiate, discipline and professional cultural practices are pervasive and a significant proportion of staff continue to identify with them.

While NPM provides a widespread narrative for university management, even in its revised, more technocratic set of form, it remains a contested and evolving set of practices. Consequently, managerialism in higher education is unlikely to remain static. Revisions that incorporate more collegiate and reflexive practice with academic staff, while retaining a focus on the demands of external stakeholders are likely to emerge. These issues are considered in the final chapter.

Chapter 8: Limitations, conclusions and implications

This chapter sets out the limitations of the case study before pulling together the conclusions from the findings that were discussed in the previous chapter. It draws out implications for the Faculty of Health Science at La Trobe and for curriculum reform for higher education more broadly.

The limitations of the case study

This research study has several limitations. As outlined in the methods section, the research conducted here is an applied intervention study, which adopted a pragmatic epistemology consistent with the mode 2 research framework based on mixed methods, case study design.

Case studies, are necessarily 'bounded' (Bennett 2004, Yin 2014). The extent to which the specific observations and interpretations from the case described can be generalised to other settings and contexts will depend on similarities across settings and the extent to which similar strategies can be usefully employed (Gerring 2004). Other faculties in other universities will be different so caution should be exercised in drawing general conclusions.

The value of this case study may lie more in the illustration of a general approach for self-reflection and critical appraisal in managing higher education organisations, particularly in the context of the widespread application of NPM strategies for the reform of teaching and learning practices. Self-critical, reflexive practice is important for senior managers in universities. As I found, this is not always comfortable, particularly when systematic feedback highlights problems and failures and circumstances change, but nevertheless the framework used for this research provided important guidance for the actual implementation of the curriculum reforms in the Faculty of Health Science at La Trobe.

It is arguable that most of the elements of this case study could be applied as part of the monitoring and analysis of organisational change in other settings. Despite the critical importance of teaching and learning to universities, there are comparatively few

organisational studies of curriculum reform in the literature. Case studies provide a useful and possibly one of the few practical methodologies available to investigate the effectiveness of interventions like curriculum reform and their impact on organisational culture and staff identity.

My involvement as a key participant or what Kawulich (2005) calls a 'complete participant' in the curriculum reform strategy and also as an observer and analyst of the process also needs to be considered. My role provided me with a holistic overview of the strategy as it unfolded. But it also made it more difficult to draw dispassionate inferences. Inevitably the role of participant and observer clashed. It was therefore important to have information from a range of other sources – administrative data, surveys and qualitative comments to support my direct observations. Commentary and feedback on my observations, interpretations and conclusions from other participants in the process were also important.

Aside from my direct observations as a participant, it is arguable that the power relations of my role as Dean influenced some of the data that were collected, particularly the staff survey. There was less risk of bias for the student satisfaction and attrition data. These were routinely collected by the university.

It was therefore important that the methodology and content of the staff survey were considered and approved by an independent university ethics committee to ensure ethical risks associated with my role did not adversely affect the staff completion of the survey or any adverse consequences if they did (or did not) participate. It was also important that the collection of data for the survey was managed by the Faculty evaluation officer to ensure staff anonymity. With the benefit of hindsight, it is clear from the robust qualitative commentary and critical appraisal of the curriculum change process in the qualitative comments, that staff did not feel inhibited or impeded in completing the survey.

The response rate for the survey was at the lower end of acceptability and this could be interpreted as reticence to respond on the part of staff. However, the survey sample characteristics were also reasonably representative of the Faculty staff profile.

As outlined in chapter 3, there were limitations in the way technical efficiency, learning effectiveness and student satisfaction were measured. Activity based costing could have provided richer and more detailed information on technical efficiency. However, resource constraints meant it was not possible to use activity based costing. The workload management model was the main internal resource management tool. Its use to estimate changes in technical efficiency was therefore justified on pragmatic grounds.

Attrition and progression are only partial measures of learning effectiveness. The extent to which the various courses prepared health science graduates for applied clinical settings, further study and life-long learning would be better outcome measures. The constraints of time and resources prevented the use of these measures. More generally, attrition and progression were key indicators of learning effectiveness for government and the University.

Similarly, the use of survey measures to evaluate student satisfaction and experience has limitations. They provide relatively broad and shallow indicators. More in depth interview or group discussion formats would provide richer information on student perceptions of teaching and learning programmes. Again, the use of survey measures was justified on pragmatic grounds because they were important measures used by the University more generally.

Conclusions

In the research statement in chapter 2 it was proposed that the curriculum reform strategy would lead to a significant improvement in teaching efficiency and that levels of student satisfaction and progression would be maintained at acceptable levels or enhanced. It was also proposed that staff would support the curriculum reform strategy and, once the reforms had been successfully implemented, staff would be satisfied with the impact of the reforms on their autonomy and professional identity.

Notwithstanding the limitations of the case study, it was clear that the results supported the first proposition but not the second. Teaching efficiency improved and satisfaction and progression were maintained or enhanced. However, although staff supported the

reforms in principle, they were dissatisfied with the process of change and felt the reforms had a negative impact on their autonomy and professional identity.

The improvements in growth in revenue, improvement in efficiency and maintenance or improvement in teaching effectiveness and student satisfaction were important for the University. Growth in student load and revenue resulting from the curriculum reforms were the principal institutional objectives for the university at the time the reforms were introduced. In that respect, the curriculum reform strategy was highly successful. The reforms enabled a significant increase in load and revenue while increasing the efficiency of subject delivery and maintaining learning effectiveness and student satisfaction. But change had come at a significant cost for staff.

The case study method was also an important set of procedures to help me reflect on my role and performance and to assist the Faculty in the implementation of the curriculum reform study. In that respect, there were a number of lessons that came out of the research for me.

Strategies that could have reduced the impact on staff

First, while the overall vision and design of the curriculum reform strategy was consistent with the universities imperatives, modifications to the way the strategy was implemented may have reduced the negative impact on staff identity and morale. As Henkel (2005) notes, academic identities in higher education are in a state of flux. Staff recognised they were caught between their desire for autonomy and collegiate decision making and the increased University wide demands for greater teaching efficiency and effectiveness.

The application of NPM in higher education has been contested for both teaching and research (Broucker, De Wit et al. 2015, Enders and Westerheijden 2017, Martin-Sardesai, Irvine et al. 2017). In this study, the focus is less on the external, competitive market conditions introduced by Australian higher education policy and more on the internal application of the functional reorganisation and performance management techniques incorporated in NPM. Performance monitoring and management of teaching and research

in combination with organisational incentives and sanctions are a set of practices designed to manage academic behaviour. If these practices are incorporated and accepted into the culture of a higher education organisation they become the narrative or myth that guides and justifies everyday behaviour (Meyer, Boli et al. 1997). But where new performance management strategies contrast sharply with existing collegiate practices and culture they are likely to lead to resistance from academic staff (Lucas 2014).

In the current study, more explicit discussion of staff roles, autonomy and identity could have been included earlier in the process. If as Henkel proposes, identities are shaped and reinforced in academic communities, then the modification or creation of new identities requires engagement with that community. The change management strategy focused on the introduction of new teaching practices and learning sequences without sufficient discussion of how change could be adapted to directly benefit staff. Partly, that might have included a discussion of the benefits of collaboration, team work, self-reflection and use of evidence in the development of teaching and learning strategies. More prosaically, explicit identification of workload, promotional benefits and research time for staff associated with more efficient and effective teaching could have been made more explicit.

Greater reflection and discussion of the possibilities for new roles and identities might also have been facilitated with greater renewal of school leadership. Although new larger, interdisciplinary schools were put in place to support change, with the exception of the Rural Health School, Heads of School were appointed internally. Competitive, open appointment may have opened-up relationships, networks and power structures in the new Schools thereby allowing greater consideration of the benefits and possibilities associated with change.

More recent revisions of NPM have been suggested to address these issues (Broucker, De Wit et al. 2015). More emphasis is placed on partnerships with internal and external stakeholders, engagement and coproduction in the design and implementation of organisational change to address the inevitable challenge of managing the relationship between structure and agency in organisations. In this respect, it is arguable that academic staff are particularly active, reflex agents within institutions that themselves claim to embody critical reflexive practice as an ideal. The application of NPM in higher education

is then a uniquely problematic example of the structure-agency problem when it is imposed on, rather than incorporated into, existing academic culture and practice. Arguably a more decentred and collegiate approach to the management of change that takes into account the importance of narratives within an organisational culture is required. This shift has been described as New Public Governance (Dickinson 2014). Within higher education, management, then more emphasis on the joint construction of the narrative that will structure organisational practices with academic staff is needed between the steering core and the academic heartland if conflict and resistance are to be avoided.

Second, more could have been done to support staff in the implementation of change and to recognise and value their contributions. The focus on the change management strategy was heavily loaded to the initial design and development phases. Consultation, discussion and communication focused on getting support for the key elements in the new model as the model developed. There was less focus on consultation, discussion and communication with staff from the Faculty leadership once in principle agreement had been reached.

Support for implementation was provided through a Faculty based teaching and learning support team to assist in the development of the new curriculum and budget allocations to Schools and Departments to provide time release for staff involved in curriculum development. Additional senior roles to manage change were also created. Nevertheless, the magnitude of introducing new curricula across a range of courses combined with a new Faculty structure, significant capital development, the introduction of new courses and the establishment of a new model for clinical experience and training placed significant additional demands on staff. More focus on the recognition of contributions, milestones and outcomes might have led to more positive perceptions of the change and implementation process.

Higher education institutions now embody hybrid cultures (Deem, Hillyard et al. 2007, Marginson 2009, Broucker, De Wit et al. 2015). NPM is layered on earlier corporatist management and collegiate cultures. The extent to which the features of NPM are incorporated varies across institutions and jurisdictions. If, increasingly, the engagement,

co-design and partnership focused practices of New Public Governance are incorporated into university management, academic leaders will need to understand the limits of their own agency and incorporate these insights into their practice.

More focus on integrating the Faculty curriculum reform strategy with University priorities might have reduced staff concerns about implementation. When the reform strategy was first introduced, Faculties had significant autonomy over their own budgets. Consequently, the Faculty allocated and managed support for implementation internally. When budgets and administrative controls were centralised, the Faculty's capacity to support change dramatically reduced. This might have been avoided if the strategy had been an explicit University, rather than Faculty level commitment. While the Vice Chancellor at the time the reforms were introduced strongly supported them, this support softened significantly with a change in University leadership.

Finally, over time I consciously changed my role from the principal architect, advocate and leader of change to one supporting others to implement and manage the new curriculum, leaving them with much greater autonomy to lead and make decisions. While that was welcomed by senior staff in the Faculty, it also led to a significant miscalculation in internal budget planning and allocation that was highly disruptive for the implementation of the new curriculum. Schools and Departments had a sharp reduction in their budgets and support for implementation. A more gradual and structured change to my role, particularly in retaining detailed responsibility for budget planning and allocation, might have avoided that problem.

Implications for the Faculty of Health Science and the University

A significant increase in student load and revenue was the most important overall impact of the curriculum reforms for the Faculty and the University. Load increased because high demand courses were introduced, particularly on the University regional campuses. The design of the new degree structure made that possible. Capacity for growth also increased with the establishment of the clinical schools network model has generated more clinical placement opportunities.

However, no new professional health science programs have been established at La Trobe since the case study. One programme, podiatry on regional campuses, has been closed because of a perceived lack of demand. The exercise science program has been expanded to the Melbourne campus resulting in student growth in that programme.

Over time, other Victorian universities have followed La Trobe in establishing and expanding health sciences programs and this has begun to place pressure on La Trobe to reduce its ATARs in professional programs to meet its load targets. Significantly increasing the proportion of students transferring to professional programs from the Bachelor of Health Sciences at the successful completion of first year is an option that could be considered. This would take pressure of the ATARs for professional programs and, in all likelihood, would strengthen demand for the Bachelor of Health Science provided the programme was appropriately promoted to students as a pathway to high demand professional programmes.

More generally, La Trobe has undergone a major organisational restructure since the case study was completed. The five Faculties that were in place at the time have been abolished and replaced by a College of Science, Health and Engineering and a College of Arts, Social Sciences and Commerce. The Schools that comprised the Faculty of Health Science have been incorporated into the College of Science, Health and Engineering with some minor adjustments.

As Leathwood and Phillips (2000) note evaluation measures and success are contested. With major institutional change, priorities change and new arrangements are put in place. Nevertheless, the curriculum reforms, including the new degree structure and pathways, the common first year, the enquiry based learning and the clinical school network model have been retained in all health sciences programs, with some minor modifications.

The ongoing maintenance of the curriculum reforms suggests that despite staff dissatisfaction with the initial process of change and the perceived impact change had on their role and identity, overtime, the curriculum reforms have been widely accepted and embedded into normal practice. Overall, the case study contributed significantly to the development and implementation of curriculum reform for the Faculty of Health Sciences at La Trobe University.

Broader implications

Although a case study of curriculum reform within one university necessarily has its limitations it nevertheless has implications for the development of curriculum reform in higher education and for further research on curriculum. As outlined in chapters 1 and 2, it is highly likely the trend toward greater managerialism in higher education will continue. Teaching and learning are central to higher education and there will ongoing pressure to introduce more effective and efficient teaching practices.

This case study contributes to the broader literature on curriculum reform in higher education by demonstrating that managerial strategies can improve the institutional efficiency and effectiveness of teaching and learning in higher education. However, using the typology proposed by Bergquist and Pawlak (2008), it also showed that the process of change is likely to have a significant impact on academic perceptions of identity, as managerialism replaces a more collegiate culture that emphasizes academic autonomy in curriculum development and teaching, at least initially.

As Henkel (2010) argued, academic identities are fluid and changeable. As autonomous, collegiate academic culture comes under pressure to respond to the demands of external stakeholders and managerialism, change management strategies become more important. As noted by Hatch and Cunliffe (2013) and Burke (2014), where organisational change is not considered carefully success becomes more problematic.

This case study illustrates the complexity and contestability of institutional change in higher education that has to be taken into account to reform curriculum and teaching. The literature on successful institutional strategies for curriculum reform is sparse. Arguably, more systematic studies of institutional change like the current study would help improve organisational practice.

Constructivist and outcomes based curriculum models are now generally supported as the basis for curriculum. Student outcomes are increasingly the focus of teaching and learning. But, even when more systematic and reflexive curriculum is put in place, as illustrated by the current study, curriculum outcomes and standards continue to be set by peer review, either through internal, self-regulation or professional accreditation. There is little

systematic, empirical analysis of the extent to which the outcomes built into the curriculum mirror those required in vocational practice.

Yet a significant proportion of higher education is now vocationally focused, including health sciences, education, management, engineering and so on. More broadly, higher education has become a precondition for just about any professional employment. In the future, there is likely to be greater pressure for graduate attributes and learning outcomes to be systematically referenced to work settings, particularly as the pace of technological, social and economic change continues to increase. This will require higher education institutions to establish better systems to monitor and adapt their curriculum to vocational requirements. Universities now have to be able to teach students to think and to prepare them for employment.

Stronger partnerships with vocational settings are implied. These could lead to more work integrated learning by students, conjoint staffing appointments and more systematic research and evaluation on student outcomes and the effectiveness of teaching and learning in meeting vocational demands.

Greater integration with vocational settings for professional education need not undermine Barnett's (1997) ideal of self-directed, critically reflective students, provided commitment to reflective evaluation and development of the curriculum is maintained. But this will require a systematic and rigorous organisational approach to monitoring the quality, outcomes and efficiency of teaching and learning.

In the highly competitive, demand driven Australian environment, institutions will struggle if they do not systematically monitor and address organisational efficiency, quality and effectiveness of their teaching and learning programmes. To date, as noted in chapter 1, Australian higher education institutions have adapted to increased competition and pressure to improve their efficiency mainly by increasing casualization, reducing staff student ratios and reducing administrative and overhead costs. Much of this is essentially 'more of the same' but with fewer resources.

In the future, institutions are likely to consider much more radical strategies to improve efficiency by transforming their teaching and learning models. Options include the introduction of more standardised outcomes based curriculum models, greater

integration with applied vocational settings, more flexible staffing and infrastructure, greater recognition of prior learning and the modularisation and sequencing of teaching and learning. In this respect, the most obvious opportunity (and threat) to the reform of teaching and learning practices is coming from digital disruption and the introduction of online and blended delivery modes (Ernst and Young nd).

As pressure to reform institutional teaching and learning practices increases, organisational change strategies for curriculum reform will become more important. But there remain comparatively few organisational research studies investigating curriculum reform in higher education institutions. More research and investigation of the process of change for curriculum reform is important. It is difficult to be a reflexive, critically self-appraising leader or manager in higher education without a research base for the organisation of the institutions central activity – teaching and learning.

Appendices

Appendix 1: Faculty of Health Science Workload Management Criteria

DRAFT Working Document Workload Management System Allocation Summary for the Faculty of Health Sciences (FHS)	
The following DRAFT FHS allocation guidelines are being trialled as part of the Tranche Two Draft La Trobe Workload Management System to ensure equitable and consistent allocations across the Faculty of Health Sciences. This document should be read in conjunction with the <i>University Tranche Two WMS Guidelines</i> , <i>FHS Principles for Curriculum Design Paper</i> , <i>FHS Academic Governance Paper</i> and the <i>FHS Research Operational Plan</i> .	
Category	Draft Faculty of Health Sciences (FHS) Allocations/Comments (applicable to discretionary categories)
TEACHING	
Course Coordination	<p>Courses:</p> <p>Apply a sliding scale to the base allocation per course:</p> <ul style="list-style-type: none"> • < 100 enrolments = maximum of 80 base hours + 0.2 hours per course enrolment (example: 100hrs for 100 students) • 100-300 enrolments = maximum of 120 base hours + 0.2 hours per course enrolment (example: 180hrs for 300 students) • > 300 enrolments = maximum of 160 base hours + 0.2 hours per course enrolment (example: 310hrs for 750 students). <p>Streams/Majors:</p> <p>50% of the maximum base allocations described above are applied for stream/major coordination + 0.2 hours per stream enrolment.</p>
Subject Coordination (Instance Coordinator)	<p>This allocation applies to the Instance Coordinator.</p> <p>Standard/Theory based subjects: (39 contact hours for 15cp subjects - as per the FHS Principles for Curriculum Design)</p> <p>For a 15 credit point subject, apply a sliding scale to the base allocation per subject instance:</p> <ul style="list-style-type: none"> • < 100 enrolments = maximum of 10 base hours + 0.2 hours per subject instance enrolment (example: 30hrs for 100 students) • 100-300 enrolments = maximum of 15 base hours + 0.2 hours per subject instance enrolment (example: 55hrs for 200 students) • > 300 enrolments = maximum of 20 base hours + 0.2 hours per subject instance enrolment (example: 80hrs for 300 students). <p>Laboratory/Clinical skill based subjects: (82 contact hours for 15cp subjects - as per the FHS Principles for Curriculum Design)</p> <p>For a 15 credit point subject, apply a sliding scale to the base allocation per subject instance:</p> <ul style="list-style-type: none"> • < 100 enrolments = maximum of 20 base hours + 0.2 hours per subject instance enrolment (example: 40hrs for 100 students) • 100-300 enrolments = maximum of 25 base hours + 0.2 hours per subject instance enrolment (example: 65hrs for 200 students) • > 300 enrolments = maximum of 30 base hours + 0.2 hours per subject instance enrolment (example: 90hrs for 300 students).
Multiple Instance Coordination (Subject Coordinator/Cross Campus Coordinator)	<p>This allocation applies to the overall Subject Coordinator (Subject Chair/Cross Campus Coordinator) overseeing multiple instances of the same subject in consultation with the Instance Coordinators.</p> <p>10 hours for the first subject instance plus an additional 5 hours per each subsequent subject instance (example: 15 hours for 2 multiple subject instances) (example: 30 hours for 5 multiple subject instances) (example: 45 hours for 8 multiple subject instances).</p>
Extended Preparation Teaching (previously referred to as Core Teaching)	<p>Lectures are consider a form of Extended Preparation Teaching.</p> <p>Mode A - staff member is new to the subject (where the subject already exists), or where a major revision is undertaken 5 hours per hour of face-to-face delivery (1hr delivery plus 4hrs)</p> <p>Mode B - staff member has previously delivered the teaching in a prior teaching period 3 hours per hour of face-to-face delivery (1hr delivery plus 3hrs)</p> <p>Mode C - for repeat teaching sessions where the staff member has previously delivered the session in the same teaching period 1 hour per hour of face-to-face delivery (delivery time only).</p> <ul style="list-style-type: none"> • Lectures that are delivered via video conferencing should be captured under this category as Mode C • Academics receiving an allocation under the 'New to Academia' category should be allocated Mode B or C • Major revisions are defined as per the University definition of a substantial change as articulated at: https://intranet.latrobe.edu.au/health/teaching-and-learning
Standard Preparation Teaching (previously referred to as Supporting Teaching)	<p>Standard Preparation Teaching includes (but not limited to) tutorials, workshops, labs/EBL.</p> <p>Mode A - first delivery of each session within a study period by the staff member 1 hour per hour of face-to-face delivery plus a further hour per hour of face-to-face delivery, these additional hours being limited to a maximum of 3 hours (3hr session would attract a further 3hr allocation = 6hrs) For science laboratory classes, the maximum further allocation is 2 hours per session</p> <p>Mode B - for every subsequent session 1 hour per hour of face-to-face delivery (delivery time only). Mode B would normally be allocated to Science Labs (when preparation time is not required by the academic).</p>
Distance or Online Delivery	<p>The maximum base allocation is 35 hours and an additional variable allocation of one hour per enrolment per 15 credit point subject.</p> <p>This allocation applies only to subjects that are delivered fully online/distance education.</p> <p>It must be taken into account that this allocation is made in addition to the student consultation and assessment and feedback allocations. The maximum allocation should therefore only be applied when additional consulting with students and additional written individual feedback for students is required.</p> <ul style="list-style-type: none"> • Non Distance Education lectures, tutorials, workshops, etc that are delivered online that require similar preparation time to face-to-face delivery should be captured under the 'Extended Preparation Teaching' or 'Standard Preparation Teaching' categories. • Self directed learning activities do not receive a workload allocation.
Student Consultation	<p>Standard/Theory based subjects: (39 contact hours for 15cp subjects - as per the FHS Principles for Curriculum Design)</p> <ul style="list-style-type: none"> • For a 15 credit point subject, a maximum of 10 minutes per student enrolment <p>Laboratory/Clinical skill based subjects: (82 contact hours for 15cp subjects - as per the FHS Principles for Curriculum Design)</p> <ul style="list-style-type: none"> • For a 15 credit point subject, a maximum of 20 minutes per student enrolment.
Assessment and Feedback	<ul style="list-style-type: none"> • Essay/assignment - 15 minutes per 1000 words • Oral presentation - maximum of 10 minutes per presentation (only applies if additional assessment time is required outside of classroom time) • Exam marking - 15 minutes per 1 hour exam (Multiple Choice Question exams to do not receive an allocation) • Practical exams/skills assessments - range 1.2 minutes per minute to 2 minutes per minute.
Projects Subjects	<ul style="list-style-type: none"> • The maximum base allocation is 35 hours per project subject and an additional variable allocation of one hour per enrolment (capped at a maximum allocation of 120 hours per annum per project subject).
Fieldwork Supervision	<p>This applies only to staff providing direct supervision of students whilst on clinical placement.</p> <p>Academics who coordinate and teach clinical subjects receive additional hours as captured under 'Subject Coordination' and 'Student Consultation'.</p> <p>Hours are allocated at the discretion of the Head of School.</p> <p>Sample FHS allocation models that currently exist (but not limited to) include:</p> <ul style="list-style-type: none"> • Students supervised in specified group sites are calculated by the Fieldwork Hours required * No. of Groups (example: 120 hours of clinical placement for 80 students (8 students per group) = 120hrs*10 groups = 1,200hrs) • Students supervised individually - maximum allocation of 12 hours per student (example: 120 hours of clinical placement for 80 students = 12hrs*80 students = 960hrs).
Reading Subjects	No allocation for this category. Where the Head of School considers an allocation warranted, this can be made against the 'Special Project' category.
HDR Supervision	<ul style="list-style-type: none"> • Maximum of 120 hours per annum for a full time student • Maximum of 60 hours per annum for a part time student <p>The allocation is to be split between the Principal Supervisor and the Co-Supervisor.</p>
Honours and Coursework Masters Thesis Supervision	Maximum of 12 hours per student per 15 credit points or 96 hours per annum per EFTSL.
Other	<p>1 hour per hour of face-to-face delivery (delivery time only) at the discretion of the Head of School.</p> <p>Other teaching types include (but not limited to):</p> <ul style="list-style-type: none"> • Non-Award Courses such as Continuing Education Programs/Short Courses • Bridging Courses/Cornerstone Program.

Additional Notes: Subjects which are co-taught (i.e. Nursing 4th & 5th year subjects) must be allocated to one instance with the enrolment numbers combined.

Last Updated: November 2011

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DRAFT Working Document Workload Management System Allocation Summary for the Faculty of Health Sciences (FHS)	
The following DRAFT FHS allocation guidelines are being trialled as part of the Tranche Two Draft La Trobe Workload Management System to ensure equitable and consistent allocations across the Faculty of Health Sciences. This document should be read in conjunction with the <i>University Tranche Two WMS Guidelines, FHS Principles for Curriculum Design Paper, FHS Academic Governance Paper and the FHS Research Operational Plan.</i>	
Category	Draft Faculty of Health Sciences (FHS) Allocations/Comments (applicable to discretionary categories)
RESEARCH AND SCHOLARLY ACTIVITY	
Research and Creative Works	<p>SUBJECT TO RELEASE OF FINAL LA TROBE UNIVERSITY GUIDELINES This section should be read in conjunction with the La Trobe Research Plan and the FHS Research Operational Plan.</p> <p>The starting point for discussion is 40%.</p> <p>The following allocations are applicable to staff who are affiliated with a Faculty research strength or an emerging strength</p> <ul style="list-style-type: none"> • Research Leader (RL) - maximum of 60% to conduct research. An allocation for research leadership is available under the Leadership and University Management category as 'Director: Research'. • Established and Productive Researcher (EPR) - 40% to conduct research, subject to a research plan agreed to by the Research Leader and Head of School. • Early Career Researcher (ECR) - Undertaking a PhD - maximum of 20% to conduct research, subject to a research plan agreed to by the Research Leader and Head of School. - Enrolment into a higher degree is allocated against the 'Service and Professional Development' category. - Completed a PhD - maximum of 40% to conduct research, subject to a research plan agreed to by the Research Leader and Head of School. • Non RL's, EPR's and ECR's Maximum of 40% to conduct research, subject to a research plan agreed to by the Research Leader and Head of School. <p>The following allocations are applicable to staff who are NOT affiliated with a Faculty research strength or an emerging strength</p> <ul style="list-style-type: none"> • Established and Productive Researcher (EPR) - maximum of 40% to conduct research, subject to a research plan agreed to with the Head of School. • Other staff - 10% to conduct research, subject to a research plan agreed to with the Head of School.
Professional and Clinical Practice	Maximum of 150 hours per annum for a full time staff member (pro rata for fractional appointments). This applies to staff who are required to maintain their registration to practice in a field. If this is not required for registration purposes then clinical practice should be allocated under the 'Service and Professional Development' category.
Research Transition	Determined by the Head of School as part of the Performance Development Framework. If an allocation is warranted under this category, the total research allocation for conducting research cannot exceed the %'s described under the 'Research and Creative Works' category.
New to Academia	Phased over three years (pro rata for fractional appointments): <ul style="list-style-type: none"> • Year One: 400 hours • Year Two: 200 hours • Year Three: 100 hours. Staff receiving an allocation under this category will not be eligible to claim Mode A under 'Extended Preparation Teaching'.
LEADERSHIP AND UNIVERSITY MANAGEMENT	
Head of School	820 hours per annum.
Head of Department or Equivalent	<ul style="list-style-type: none"> • Small Department <=20 staff - maximum of 200 hours per annum • Medium Department 21-35 staff - maximum of 350 hours per annum • Large Department 36-50 & Very Large Department >50 staff - maximum of 500 hours per annum.
Director: Teaching and Learning	Not applicable to FHS.
Director: Research	Research Leader (RL) - maximum of 20% to lead a research program affiliated with a Faculty research strength or an emerging strength.
Post Graduate and Honours Coordination	<ul style="list-style-type: none"> • Coordinating <16 courses/streams - maximum of 80 hours per annum • Coordinating >16 courses/streams - maximum of 160 hours per annum These hours are to be apportioned between the Coordinator and Deputy Coordinator (where these roles exist) A maximum of one Post Graduate/Honours Coordination role is limited per School.
Compliance Committee Positions	<p>This allocation is to cover time commitments required of staff who hold leadership positions on Compliance Committees, i.e. Human Ethics Committee as per the La Trobe WMS Tranche 2 Parameters - refer to section 1.3, pg. 27. This is determined by the Faculty Dean in consultation with the Head of School (where appropriate) within the maximum allocation sets:</p> <ul style="list-style-type: none"> • Human Ethics - REE (Panels for Expedited Ethical Review) 1 Chair: Maximum of 500 hours • Other: Maximum of 320 hours.
Fieldwork Coordination	Not applicable.
Performance Development Framework Supervision	2 hours per annum per staff member under Performance Development Framework supervision.
Strategic Projects	This is subject to an approved project plan by the Head of School.
Travel on University Business	Up to a maximum of 7 hours per day of travel. Acclimatisation of 1 day is applicable to international travel of 1 day or greater.
Other	<p>Discretion of the Head of School.</p> <p>The following maximum allocations need to be considered in conjunction with other coordination allocations.</p> <p>Undergraduate Coordination/Course Campus Contact: Total maximum of 160 hours per annum These hours are to be apportioned between the Coordinator and Deputy Coordinator (where these roles exist).</p> <p>International Course/Program Coordination: Total maximum of 160 hours per annum</p> <p>First Year Coordination:</p> <ul style="list-style-type: none"> • CFY Coordination - maximum of 260 hours per annum • Deputy Coordination Metro - maximum of 156 hours per annum • Deputy Coordination Regional - maximum of 182 hours per annum • Campus Coordinators - maximum of 65 hours per annum.
SERVICE AND PROFESSIONAL DEVELOPMENT	
University Service Service to Profession or Discipline Service to Communities Professional Development	<p>SUBJECT TO RELEASE OF FINAL LA TROBE UNIVERSITY GUIDELINES The starting point for discussion is 320 hours per annum (pro rata for fractional appointments) - refer to section 1.4, pg. 34 in the La Trobe WMS Tranche 2 Parameters for a description of the sub-categories.</p> <p>Base allocation of 120 hours will be allocated per annum (pro rata for fractional appointments). A further allocation up to a total maximum of 320 hours (pro rata for fractional appointments) can be negotiated subject to an approved professional development plan by the Head of School.</p> <p>Other Coordination activities allocated against University Service:</p> <ul style="list-style-type: none"> • Program Coordination for Non-award/Continuing Education programs - maximum of 10 hours per instance/event, subject to approval by the Head of School • Discipline Mentor/Year Coordinator - maximum of 24 hours per annum, subject to approval by the Head of School. <p>Please note that enrolment into a Higher Degree is allocated against 'Professional Development' as per the La Trobe WMS Tranche 2 Parameters.</p>

Appendix 2: Review of EBL implementation

Overleaf you are asked to rate the degree to which you believe EBL has been implemented in a subject. To guide your judgements, below are some features typical of different levels of EBL. These are examples and not prescriptions.

Level of Implementation	Indicator Examples or Typical Features
1. Low	<ul style="list-style-type: none"> • Traditional or 'didactic' teaching, where the dominant mode is transmitting information from teacher to students. • Students' role is primarily to acquire knowledge and reproduce it on tasks such as exams. • Students mostly work independently; teamwork is not a feature. • Most responsibility for framing questions and problems rests with the teacher. • There is usually only one right answer or response to relatively simple problems • There is more emphasis on memorisation and description than analysis or evaluation. • Students are reliant on the teacher's instructions for most of their work in class.
2. Some	<p>Mostly the same as 1. above, but with some of the following features (for example):</p> <ul style="list-style-type: none"> • Use of discipline-specific or related case studies in lectures • Discussion of case-studies in lectures • Questions with feedback in lectures • Lecture is the primary mode of instruction
3. Medium	<p>Mostly the same as 4. below, and may have some of these features (for example):</p> <ul style="list-style-type: none"> • Assessment by tests and exams that include material related to both lectures and enquiry topics. • Students engage with the subject material through dialogue and discussion, including online discussions. • Questions and assessment are open ended and applied to authentic situations or professional experience without being structured around specific enquiries. • Students workshop responses to cases involving more complex issues and concepts
4. High	<ul style="list-style-type: none"> • The teacher establishes the task and facilitates the process, but the students pursue their own lines of enquiry and/or problem-solving • Students seek evidence to support their ideas and take responsibility for analysing and presenting this appropriately.

	<ul style="list-style-type: none"> • An emphasis on critiquing and applying ideas, concepts and knowledge, rather than simply memorising information • Teamwork is routinely taught and assessed. • Multiple, equally valid responses may be applied to cases or problems which reflect the complexity of real-life applied examples. • There is more emphasis on analysis or evaluation than description of information or process. • Students are able to self-direct their learning most of the time, with teachers mostly being on 'stand-by' to assist when needed.
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Estimate of the Level of Enquiry-Based Learning Implementation

Subject Code:

Subject Year Level:

☐ **1**

☐ **2**

It is important to acknowledge that not all subjects present the same opportunity to appropriately engage in EBL. To take account of this, please rate this subject's EBL Potential: (please check):

☐ **High**

☐ **Medium**

☐ **Low**

Please estimate the level (1-4) at which this subject has incorporated EBL. You can either allocate a single global estimate (Option 1) or rate each component of the subject (Option 2).

Scoring Key: 1=Low, 2=Some, 3=Medium, 4=High

		Rating (1-4)
Option 1: Overall/Global estimate:		
Option 2: Rate any relevant indicators below, or which you feel informed enough about:		
Area	Example Indicators	
	<ul style="list-style-type: none"> • Essential components of EBL are explicitly outlined in intended learning outcomes and/or Subject Learning Guide/Subject Outline 	

A. Curriculum Documents	<ul style="list-style-type: none"> • Descriptions of learning and assessment tasks are consistent with EBL approach 	
B. Teaching & Learning (actual delivery and/or interaction between staff and students)	<ul style="list-style-type: none"> • Teaching staff use a range of methods to support EBL 	
	<ul style="list-style-type: none"> • Teachers regularly discuss the why's and how's of EBL with students 	
	<ul style="list-style-type: none"> • Lectures and smaller group learning activities are linked in content and are consistent with the EBL approach 	
C. Assessment	<ul style="list-style-type: none"> • Assessment guidelines and criteria explicitly address key components of EBL in a range of ways (multiple methods and opportunities for student to demonstrate the outcomes of EBL) 	
	<ul style="list-style-type: none"> • Assessment tasks include opportunity to demonstrate student EBL-related achievement 	
D. Other possible indicators (please feel free to add your own indicators or questions	<ul style="list-style-type: none"> • Teachers have engaged in EBL academic development activities 	
	<ul style="list-style-type: none"> • Regular collegiate interaction includes EBL-related discussion and exchange of ideas and strategies 	
	<ul style="list-style-type: none"> • Teacher self-efficacy: staff are generally confident, positive and committed to EBL 	
	<ul style="list-style-type: none"> • Other (please feel free to add your own indicators or questions): 	
	<ul style="list-style-type: none"> • Other: 	
	Sum of Indicators scores	
	(Divided by) Number of Indicators rated	
= Mean of component scores		

FHS Curriculum Reform Staff Survey 2011

This survey invites your feedback on the Faculty Teaching and Learning Strategy, and takes about 10 - 15 minutes to complete (depending on the length of your optional written comments).

This survey is part of the Faculty's commitment to better communication and staff consultation in a range of areas. Your input will assist us to identify and act on areas for improvement, as well as areas of perceived strength.

Summarised, deidentified results will be made available to all Faculty members, as will strategies for incorporating findings into Faculty improvement processes.

For professional and administrative staff, some items may not appear to be directly relevant to your role. Your input on all items is welcomed, but if you do not feel you can usefully comment on any items, please check the NA (Not applicable) option.

Participation is voluntary and the Survey Monkey data collection technology is anonymous. Data will be stored securely for five years then destroyed, subject to legal requirements.

No individuals will be identified from responses to this survey.

The ethical aspects of this research project have been approved by the Faculty of Health Sciences' Human Ethics Committee, La Trobe University. If you have any complaints or queries that the researchers have not been able to answer to your satisfaction, then you may contact the Secretary, Faculty Human Ethics Committee, Faculty of Health Sciences, La Trobe University, Victoria 3086.

Your consent to participate will be implied by the completion of the survey. Therefore, if you wish to participate, please proceed.

Thank you for your assistance.

Some Information about you

1. Gender (male/female)
2. Age (optional)
(years)
3. What is your highest qualification level?
4. For how long have you worked in universities?
(years/months)
5. For how long have you worked at La Trobe?
(years/months)
6. Campus (select one or more of the following)
(Melbourne, Bendigo, Albury Wodonga, Shepparton, Mildura, Other (specify))
7. School (select one or more of the following)
(Rural Health School, School of Allied Health, School of Health Sciences Research, School of Nursing and Midwifery, School of Public Health and Human Biosciences, other (specify))
8. I am involved in the following course (option, please select one or more of the following)
(Dentistry, Dietetics/Nutrition, Health Information Management, Human Biosciences, Nursing, Nursing/Midwifery, Occupational Therapy, Oral Health, Paramedics, Podiatry, Physiotherapy, Prosthetics & Orthotics, Public Health, Social Work, Speech Pathology, Other (specify))
9. Employment Status (select on or more of the following)
(Full Time, Part Time, Fixed Term, Permanent, Casual/Sessional, Postgraduate Student)
10. Which best describes your current role at La Trobe University?
(Professional/Administration, Teaching and Research, Teaching Support, Research Only, Other (specify))
- 11, What is your appointment classification (professional Staff)
(Higher Education Officer 1-10)
12. What is your appointment classification (academic staff)
(Level A-E)

The Academic Role

1. The main purpose of teaching should be: (strongly disagree, disagree, neutral, agree, strongly agree, not applicable)

To transmit discipline knowledge to students

For students to learn to apply knowledge and skills

To prepare students to work as professionals in their disciplines

To help students develop self-directed, life-long learning skills

2. The following stakeholders should have a major role in decisions about teaching content and delivery: (strongly disagree, disagree, neutral, agree, strongly agree, not applicable)

Professional, industry and community stakeholders

Central University leaders

Faculty leaders

Academics and their local workgroups

Comments: (please specify)

3. University research should: (strongly disagree, disagree, neutral, agree, strongly agree, not applicable)

Have clearly perceivable benefits for society

Be judged by international indicator of excellence such as the ERA

Have clear links to curriculum content

4. The following stakeholders should have significant influence in decisions about research priorities and projects ((strongly disagree, disagree, neutral, agree, strongly agree, not applicable)

Professional, industry and community stakeholders

Central University leaders

Faculty leaders

Academics and their local workgroups

Comments: (please specify)

Teaching and Learning Reforms

1. To what extent do you agree or disagree with the following developments in teaching and learning: (strongly disagree, disagree, neutral, agree, strongly agree, not applicable)

Core studies (Common First Year)

In principle

The way they have been implemented so far

Enquiry Based Learning (including problem-based learning)

In principle

The way they have been implemented so far

Interprofessional focus

In principle

The way they have been implemented so far

Clinical School Network model

In principle

The way they have been implemented so far

Discipline mentoring

In principle

The way they have been implemented so far

Rural Health School model

In principle

The way they have been implemented so far

Graduate attributes/capabilities

In principle

The way they have been implemented so far

Increases in student numbers

In principle

The way they have been implemented so far

Facilitated transfers at the end of first year

In principle

The way they have been implemented so far

Bachelor/Masters degree structure

In principle

The way they have been implemented so far

'Early exit' with Bachelor Degree

In principle

The way they have been implemented so far

2. To what degree do you agree with the introduction of: (strongly disagree, disagree, neutral, agree, strongly agree, not applicable)

Oral health/Dentistry

In principle

The way they have been implemented so far

Dietetics

In principle

The way they have been implemented so far

Paramedics

In principle

The way they have been implemented so far

Sports Science and Exercise Physiology

In principle

The way they have been implemented so far

Audiology

In principle

The way they have been implemented so far

Comments (please specify)

Progress towards teaching and learning reforms

1. To what extent do you believe the following changes have been implemented: (not at all, a little, about halfway, reasonably well, fully, not applicable)

Enquiry Based Learning

Your own practice

The practice of most colleagues in your discipline or department

Interprofessional learning

Your own practice

The practice of most colleagues in your discipline or department

Team based learning

Your own practice

The practice of most colleagues in your discipline or department

Comments (please specify)

2. To what degree have you engaged with: (not at all, a little, about halfway, reasonably well, fully, not applicable)

Support from educational design staff

Professional development activities for teaching and learning

Comments (please specify)

Professional identity

This section relates to how recent changes have impacted on your professional identity.

Please indicate how the following recent changes have impacted on: (very negatively, negatively, no change, positively, very positively, not applicable)

Your sense of professional identity

Your professional autonomy

How strongly you identify with your discipline

How strongly you identify with the Faculty

How strongly you feel you belong to your department or discipline

How strongly you feel you belong to the Faculty

How valued you feel within your department or discipline

How valued you feel within the Faculty

Comments (please specify)

Support for teaching and learning reform

- 1 Please indicate how satisfied you are with the following aspects of support for teaching and learning change: (very dissatisfied, dissatisfied, neutral, satisfied, very satisfied, not applicable)

Processes for subject review

Processes for course review

Access to data on feedback on teaching performance

Linking teaching performance with performance development processes

Linking teaching performance to promotion prospects

Resources such as time and financial support made available to support curriculum changes

Having access or input into important curriculum decision-making process (including committees)

- 2 Workload allocation for curriculum development (very dissatisfied, dissatisfied, neutral, satisfied, very satisfied, not applicable)

At the local department level

At the Faculty leadership level

- 3 Support from educational design staff (very dissatisfied, dissatisfied, neutral, satisfied, very satisfied, not applicable)

At the local department level

At the Faculty leadership level

- 4 Professional development activities for teaching and learning (very dissatisfied, dissatisfied, neutral, satisfied, very satisfied, not applicable)

At the local department level

At the Faculty leadership level

- 5 Communication about the reasons for curriculum change (very dissatisfied, dissatisfied, neutral, satisfied, very satisfied, not applicable)

At the local department level

At the Faculty leadership level

- 6 Communication about actual change management strategies (very dissatisfied, dissatisfied, neutral, satisfied, very satisfied, not applicable)

At the local department level

At the Faculty leadership level

- 7 Encouragement for performance in general (very dissatisfied, dissatisfied, neutral, satisfied, very satisfied, not applicable)

At the local department level

At the Faculty leadership level

- 8 Recognition for achievements in implementing teaching and learning changes (very dissatisfied, dissatisfied, neutral, satisfied, very satisfied, not applicable)

At the local department level

At the Faculty leadership level

- 9 Consultation and discussion about changes to curriculum (very dissatisfied, dissatisfied, neutral, satisfied, very satisfied, not applicable)

At the local department level

At the Faculty leadership level

Comments (please specify)

Overall

This final section asks for overall perceptions about recent changes, their management and effects on morale

1. I generally trust the Faculty leadership team to do the right thing by: (strongly disagree, disagree, neutral, agree, strongly agree, not applicable)

Students

Staff

2. The Faculty's teaching and learning strategy will likely result in better outcomes for: (strongly disagree, disagree, neutral, agree, strongly agree, not applicable)

Students

Staff

3. Management and morale: (strongly disagree, disagree, neutral, agree, strongly agree, not applicable)

In principle, I generally support the Faculty's teaching and learning strategy

I feel optimistic about my future in the Faculty

I feel optimistic about the current direction of the Faculty

I feel more optimistic about the Faculty than I did one year ago

I would say morale is currently heading in a positive direction

I feel I am currently suffering 'change fatigue'

I feel that my workload is generally quite manageable

I would like to still be here in 5 years time

I generally feel valued in my role within the Faculty

I feel my efforts within the Faculty are generally well recognised

I generally feel committed to working harder than is strictly necessary

Overall the Faculty's curriculum reforms have been well implemented

The best things about working in the Faculty are (please specify)

The things that most need improvement in the Faculty are (please specify)

Other comments or suggestions (please specify)

Appendix 4: Staff survey scale items

Curriculum Support scale

Core studies
Enquiry based learning
Interprofessional focus
Clinical school network
Discipline mentoring
Rural Health School Model
Graduate attributes/capabilities
Increases in student numbers
Facilitated transfers at the end of first year
Bachelors/Master degree structure
Early exit with Bachelor degree

Curriculum Implementation scale

Core studies
Enquiry based learning
Interprofessional focus
Clinical school network
Discipline mentoring
Rural Health School Model
Graduate attributes/capabilities
Increases in student numbers
Facilitated transfers at the end of first year
Bachelors/Masters degree structure
Early exit with Bachelor degree

Teaching Practice scale

Enquiry based learning
Interprofessional learning
Team based learning
Engagement with educational design staff

Engagement with professional development activities for teaching and learning

Course Support In-principle scale

Oral health/Dentistry

Dietetics

Paramedics

Sports Science and Exercise Physiology

Audiology

Course Implementation scale

Oral health/Dentistry

Dietetics

Paramedics

Sports Science and Exercise Physiology

Audiology

Morale Scale

I feel optimistic about my future in the in the Faculty

I feel optimistic about the current direction of the Faculty

I feel more optimistic about the Faculty than I did one year ago

I would say morale is currently heading in a positive direction

I would like to still be working here in 5 years time

I generally feel valued in my role within the Faculty

I feel my efforts within the Faculty are generally well recognised

Identity scale

Your sense of professional identity

Your professional autonomy

How strongly you identify with your discipline

How strongly you identify with the Faculty

How strongly you feel you belong to your department or discipline

How strongly you feel you belong to the Faculty

How valued you feel within your department or discipline

How valued you feel within the Faculty

Stakeholder scale

Central university leaders teaching

Faculty leaders teaching

Central university leaders research

Faculty leaders research

Change management Scale

Satisfaction with process for subject review

Satisfaction with data and feedback on teaching performance

Satisfaction with process for course review

Satisfaction with linking data to performance development for teaching

Satisfaction with linking teaching performance to promotion

Satisfaction with resources for curriculum reform

Satisfaction with input into important curriculum reform decisions

Workload allocation for curriculum development at Faculty level

Workload for allocation for curriculum development at local departmental level

Support from educational design staff at Faculty level

Support from educational design staff at local departmental level

Professional development activities for teaching and learning at Faculty level

Professional development teaching and learning at local departmental level

Communication about reasons for curriculum change at Faculty level

Communication about reasons for curriculum change at local departmental level

Communication about actual change management strategies at Faculty level

Communication about actual change management strategies at local department level

Encouragement for performance in general at Faculty level

Encouragement for performance in general at local department level

Recognition for achievements in implementing teaching and learning strategies at Faculty level

Recognition for achievements in implementing teaching and learning strategies at department level

Appendix 5: Student Feedback and Satisfaction items

The following items were included in the student feedback and satisfaction questionnaires used by the Faculty.

Overall, the amount I have learned in this subject is (5-very high, 4-high, 3-adequate, 2-low, 1-very low)

Assessments are clearly connected to the learning objectives (5-always, 4-usually, 3-sometimes, 2-rarely, 1-never)

Feedback provided contributes to my learning (5-always, 4-usually, 3-sometimes, 2-rarely, 1-never)

Learning objectives are clear to me (5-always, 4-usually, 3-sometimes, 2-rarely, 1-never)

Marking and grading criteria are clear to me (5-always, 4-usually, 3-sometimes, 2-rarely, 1-never)

Material is well organised to help me learn (5-always, 4-usually, 3-sometimes, 2-rarely, 1-never)

The amount of work required is appropriate to the learning objectives (5-always, 4-usually, 3-sometimes, 2-rarely, 1-never)

Overall, the level of intellectual challenge in this subject is (5-very high, 4-high, 3-adequate, 2-low, 1-very low)

Overall, the quality of this subject is (5-very high, 4-high, 3-adequate, 2-low, 1-very low)

Overall, the value of what I have learned in this subject is (5-very high, 4-high, 3-adequate, 2-low, 1-very low)

The amount of work required is appropriate to the learning objectives (5-always, 4-usually, 3-sometimes, 2-rarely, 1-never)

Work assigned contributes to my learning (5-always, 4-usually, 3-sometimes, 2-rarely, 1-never)

Bibliography

- Adams, G. (2000). "Uncovering the political philosophy of the new public management." Administrative Theory & Praxis **22**(3): 498-499.
- AIHW Dental Statistics and Research Unit (2006). Dental therapist labour force in Australia, 2003. AIHW Cat. No. DEN 155. Adelaide, AIHW Dental Statistics and Research Unit.
- Anderson, B. and J. Bell (1988). Occupational Therapy: Its place in Australia's History. Sydney, NSW Association of Occupational Therapists.
- Australian Council on Educational Research (2016). "Australasian Survey of Student Engagement (AUSSE)." from <https://www.acer.edu.au/ausse/reports>.
- Australian Dental Association Inc. (ADA) (2005). "Policy Statement: Allied Dental Personnel." from http://www.ada.org.au/media/documents/Policies_and_Guidelines/April06/2.3_Allied_Dental_Personnel.pdf [Accessed 21 November 2006].
- Australian Department of Education and Training (2016). "Higher Education." 2016, from <https://www.education.gov.au/higher-education-0>.
- Australian Institute of Health & Welfare (2003a). Health and community services labour force, 2001 (AIHW Cat. no. HWL 27 and ABS Cat. no. 8936.0). National Health Labour Force Series, Number 27. Canberra, AIHW.
- Australian Institute of Health & Welfare (2003b). "Labour force - other health labour forces." from http://www.aihw.gov.au/labourforce/other_health.cfm (Accessed 3 October 2006).
- Australian Institute of Health & Welfare (2003c). Pharmacy Labour Force to 2001. AIHW cat.no. HWL 25. National Health Labour Force Series No. 25. Canberra, AIHW.
- Australian Institute of Health and Welfare (2006c). Podiatry labour force 2003. AIHW cat. no. HWL 36. National Health Labour Force Series no. 35 Canberra, AIHW. **National Health Labour Force Series no. 35**
- Australian Institute of Health and Welfare (2016). "Health Workforce." from <http://www.aihw.gov.au/workforce/>.
- Badley, G. (2003). "The crisis in educational research." European Educational Research Journal **2**(2): 296-308.
- Bagshaw, E. (2016). Gaming the system: the beginning of the end for university admissions. Sydney Morning Herald. Sydney, Fairfax. **January 29**.
- Barnett, R. (1997). Higher education a critical business. Bristol, Open University Press.
- Barr, R. B. and J. Tagg (2000). From teaching to learning. Learning from change. D. DeZure. London, Stylus Publishing.

- Barrie, S. C. (2007). "A conceptual framework for the teaching and learning of generic graduate attributes." Studies in Higher Education **32**(4): 439-458.
- Barrows, H. and R. Tamblyn (1980). Problem based learning: an approach to medical education. New York, Springer.
- Barzelay, M. (1992). Breaking through bureaucracy. Sacramento, California, University of California Press.
- Becher, T. (1989). Academic tribes and territories: Intellectual enquiry and the cultures of disciplines. Buckingham, UK, SRHE/Open University Press.
- Bennett, A., Ed. (2004). Case study methods: design, use, and comparative advantages. Models, numbers, and cases: methods for studying inter-national relations. Ann Arbor, University of Michigan Press.
- Bentley, P. and D. Dunstan (2006). The Path to Professionalism: Physiotherapy in Australia to the 1980s. Melbourne, Australian Physiotherapy Association.
- Bergquist, W. (1992). The four cultures of the academy. San Francisco, Jossey Bass.
- Bergquist, W. and K. Pawlak (2008). Engaging the six cultures of the academy. San Francisco John Wiley.
- Bexley, E., et al. (2011). The Australian academic profession in transition: Addressing the challenge of reconceptualising academic work and regenerating the academic workforce. Melbourne, Centre for the study of higher education (CSHE), University of Melbourne.
- Biggs, J. and C. Tang (2007). Teaching for quality learning at university, 3rd edn. Buckingham, The Society for Research into Higher Education and Open University Press.
- Boston, J. (1994). Origins and Destinations: New Zealand's Model of Public Management and the International Transfer of Ideas. Fulbright Conference, Brisbane.
- Bowden, J. and F. Marton (1998). The university of learning: beyond quality and competence. London, Kogan Page.
- Broucker, B., et al. (2015). An evaluation of new public management in higher education: same rationale, different implementation. EAIR Forum. Krems, Austria.
- Broucker, B., et al. (2015). New Public Management or New Public Governance for the Higher Education sector. EGPA Annual Conference. Toulouse, France.
- Buchanan, J. and G. Tullock (1958). The calculus of consent: Logical foundations of constitutional democracy. Indianapolis, Liberty fund.
- Burke, W. (2014). Organisation change. Los Angeles, Sage.
- Business Council of Australia (2006). New concepts in innovation: the keys to a growing Australia. Melbourne, Business Council of Australia.

- By, R. T. (2005). "Organisational change management: A critical review." Journal of Change Management **5**(4): 369-380.
- Byrne, D. and C. Davenport (2005). "Contemporary profiles of clinical and health psychologists in Australia." Australian Psychologist **40**(3): 190-201.
- Campbell, D. and J. Stanley (1963). Experimental and quasi-experimental designs for research. Boston, Houghton Mifflin.
- Candy, P., et al. (1994). Developing lifelong learners through undergraduate education. Canberra, National Board of Employment, Education and Training.
- Casey, C. and P. Monley (2006). Audiology in Australia: A Brief History. Perth, University of Western Australia: 1-52.
- Cheung, A. (1997). "Understanding public-sector reforms: global trends and diverse agenda." International Review of Administrative Science: 435-457.
- Chipchase, L., et al. (2006). "Looking back at 100 years of physiotherapy education in Australia." Australian Journal of Physiotherapy **52**(1): 3-7.
- Clark, B. R. (1983). The higher education system: academic organisation in cross-national perspective. Los Angeles, University of California.
- Clark, B. R. (2004). Sustaining change in universities: continuities in case studies and concepts, Open University Press.
- Cole, B. (2003). "An Assessment of the Orthoptics Course at LaTrobe University Report for Optometrists Association Victoria." from http://www.vicoptom.asn.au/pdf/Optometrists_HPRReg_review_response_app2_Cole_Orthoptics_report_04Feb04.pdf (Accessed 12 October 2006).
- Colliver, J. (2000). "Effectiveness of problem based learning curricula: research and theory." Academic Medicine **75**(3): 259-266.
- Common, R. (1998). "Convergence and Transfer: a review of the globalization of new public management." International Journal of Public Sector Management **11**(6): 440-450.
- Considine, M. (1997). Managerialism Strikes Out. Managerialism: The Great Debate. M. Considine and M. Painter, Melbourne University Press: 88-111.
- Considine, M. and M. Painter (1997). Introduction. Managerialism: the great debate. M. Considine and M. Painter. Melbourne, Melbourne University Press: 1-11.
- Cook, T. and D. Campbell (1990). Experimental and quasi experimental designs for research. Willmington, Houghton Mifflin.
- Cooksy, L. J., et al. (2001). "The program logic model as an integrative framework for a multimethod evaluation." Evaluation and Program Planning **24**(2): 119-128.

- Curry, B. (1992). Instituting enduring innovations: Achieving Continuity of change in higher education. ASHE-ERIC Higher Education Report No. 7. Washington, DC.
- Dawkins, J. (1988). Higher education, a policy statement (the white paper). Canberra, Australian Government Printing Service.
- de Boer, H., et al. (2009). Market Governance in Higher Education. The European Higher Education Area: Perspectives on a Moving Target. B. Kehm and J. Huisman. Rotterdam, Sense Publishers.
- de Boer, H., et al. (2008). Comparing Higher Education Governance Systems in Four European Countries. Governance and Performance of Education Systems. N. Soguel and P. Jaccard. Dordrecht, Springer: 35-54.
- de Graaf, E. (2006). History of problem-based and project-based learning. Management of change: implementation of problem-based and project-based learning in engineering. E. de Graaf. Rotterdam, Sense Publishers.
- Deem, R., et al. (2007). Knowledge, higher education and the new managerialism. Oxford, Oxford University Press.
- Dental Board of Australia (2016). Registrant data, Dental Board of Australia.
- Department of Education and Training (2016). "Skills agencies, boards and councils." from <https://www.education.gov.au/skills-agencies-boards-and-councils>.
- Department of Education Employment and Work Force Relations (2008). Quarterly Labour Force Survey Estimates. Canberra.
- Des Marchais, J. E., et al. (1992). "From traditional to problem based learning: a case report of a complete curriculum reform." Medical Education **26**(190-199).
- DeVellis, R. (2012). Scale development: theory and applications. Los Angeles, Sage.
- DeWalt, K. M. and B. R. DeWalt (2002). Participant observation: a guide for fieldworkers. Walnut Creek, CA, AltaMira Press.
- Dickinson, H. (2014). Performing governance: partnerships, culture and New Labour. Basingstoke, UK, Palgrave Macmillan.
- Duckett, S. (2004). The organisational antecedents of the Faculty of Health Sciences at La Trobe University. Melbourne, LaTrobe University Faculty of Health Sciences, Faculty Development Committee. : http://www.latrobe.edu.au/health/pages/fhs_history.pdf - [search=%22Prosthetics%20and%20Orthotics%20history%20education%22](http://www.latrobe.edu.au/health/pages/fhs_history.pdf?search=%22Prosthetics%20and%20Orthotics%20history%20education%22) [Accessed 12 October 2006].
- Duckett, S. J. (2004). The organisational antecedents of the Faculty of Health Sciences at La Trobe University.

- Eldar, R. and M. Jelic (2003). "The association of rehabilitation and war." Disability and Rehabilitation **25**(18): 1019-1023.
- Eldridge, M. (1968). A History of the Treatment of Speech Disorders. Melbourne, FW Cheshire.
- Enders, J. and D. Westerheijden (2017). "The Dutch way of New Public Management." Policy and Society **33**(3): online.
- Ernst and Young (nd). University of the future: a thousand year onld industry on the cusp of profound change, Ernst and Young.
- Ferlie, E., et al. (1996). Characterizing the New Public Management. Public Management: Critical Perspective. S. P. Osborne. Routledge, Routledge: 204-227.
- Foucault, M. (1977). Discipline and punish, Vintage.
- Fraser, S. P. and A. M. Bosanquet (2006). "The curriculum? That's just a unit outline, isn't it?" Studies in Higher Education **31**(3): 369.
- Gallagher, S. and G. Garrett (2013). Disruptive Education: Technology Enabled Universities, The United States Studies Centre at The University of Sydney.
- Gerring, J. (2004). "What is a case study and what is it good for?" American political science review **98**(2): 341-354.
- Gibbons, M., et al. (1994). The production of knowledge: the dynamics of science and research in contemporary societies. London, Sage.
- Gibbs, G. (2007). Thematic coding and categorizing. Analyzing Qualitative Data. London, Sage.
- Giddens, A. (1998). The third way. Oxford, Blackwell Publishers.
- Giddens, A. (2000). The third way and its critics. Oxford, Blackwell Publishers.
- Giddens, A. (2001). The global third way debate. Oxford Blackwell Publishers.
- Gordon, G. and C. Whitchurch, Eds. (2010). Academic and proessional identities in higher education: the challenges of a diversifying workforce. New York, Routledge.
- Guba, E. and Y. Lincoln (1994). Competing paradigms in qualitative research. Handbook of qualitative research. N. Denzin and Y. Lincoln. Thousand Oaks, Sage.
- Halligan, J. (1997). New Public Sector Models: Reform in Australia and New Zealand. Public Sector Reform: Rationale, Trends, and Problems. J. Lane. London, Sage Publications: 17-46.
- Harden, R. M. (2002). "Developments in outcome based education." Medical Teacher **24**(2): 117-120.

- Harris, L., et al. (2010). "Implementing curriculum evaluation: case study of a generic undergraduate degree in health sciences." Assessment & Evaluation in Higher Education **35**(4): 477-490.
- Hatch, M. J. and A. L. Cunliffe (2013). Organization Theory: modern, symbolic and postmodern perspectives. Oxford, Oxford University Press.
- Health Workforce Australia (2012). Health Workforce 2025 Doctors, Nurses and Midwives - Volume 1, Health Workforce Australia.
- Heath Patricia (2002). National Review of Nursing. Canberra, Commonwealth of Australia.
- Helmes, E. and N. Pachana (2006). "Issues in training in clinical psychology in Australia: Interplay between training goals and legal standards of practice." Australian Psychologist **41**(2): 104-111.
- Helmes, E. and D. Wilmoth (2002). "Training in clinical psychology in Australia: A North American perspective." Australian Psychologist **37**(1): 52-55.
- Henard, F. (2010). Learning our lesson: review of quality teaching in higher education. Paris, OECD.
- Henkel, M. (2005). "Academic identity and autonomy in a changing policy environment." Higher Education **49**: 155-176.
- Henkel, M. (2010). Introduction: change and continuity in academic and professional identities. Academic and professional identities in higher education: the challenges of a diversifying workforce. G. Gordon and C. Whitchurch. New York, Routledge.
- Hesse, J. (1997). Rebuilding the state: Public sector reform in Central and Eastern Europe. Public sector reform: Rationale, Trends, and Problems. J. Lane. London, Sage publications: 114-146.
- Hicks, O. (2007). Curriculum in higher education in Australia - hello?. 30th HERDSA Annual Conference, Adelaide, HERDSA.
- Holmes, M. and D. Shand (1992). "Public sector management reform: Convergence or divergence." Governance **5**: 472-483.
- Hood, C. (1991). "A public management for all seasons." Public Administration **69**: 3-19.
- Hood, C. (1995). "Contemporary public management: a new global paradigm?" Public Policy and Administration **10**(2): 104-117.
- Hughes, O. (2003). Public management and administration: An introduction. New York, Palgrave.
- Huisman, J. and J. Currie (2004). "Accountability in higher education: bridge over troubled water?" Higher Education **48**: 529-551.
- Ivy, J. (2007). "Exercise physiology: a brief history and recommendations regarding content requirements for kinesiology major." American Academy of Kinesiology and Physical Education **59**: 34-41.

Jensen, M. and W. T. o. t. f. M. b. Meckling, agency costs and ownership structure (1976). "Theory of the firm: Managerial behavior, agency costs and ownership structure." Journal of Financial Economics **3**(4): 305-360.

Johnson, R. and A. Onwuegbuzie (2004). "Mixed methods research: a paradigm whose time has come." Educational Researcher **33**(7): 14-26.

Kanter, R. (1991). "Transcending business boundaries." Harvard Business Review **69**(3): 151-164.

Kaplan, R. and S. Anderson (2003). "Time-Driven Activity-Based Costing ".

Kawulich, B. (2005). "Participant observation as a data collection method." Forum Qualitative Social Research **6**(2).

Kemp, D. and A. Norton (2014). Review of the demand driven funding systems. Canberra, Commonwealth Government.

Kezar, A. and P. Eckel (2002). "The effect of institutional culture on change strategies in higher education: Universal principles or culturally responsive concepts?" The Journal of Higher Education **73**(4): 435-460.

Koh GC-H, et al. (2008). "The effects of problem-based 7 learning during medical school on physician competency: a systematic review." Canadian Medical Association Journal **178**: 34-32.

Kotter, J. (1995). "Leading change: why transformation efforts fail." Harvard Business Review(March - April): 59-67.

La Trobe University (2009). Design for learning. Melbourne, La Trobe University.

La Trobe University (2013). Annual Report 2013. Melbourne, La Trobe University.

La Trobe University (2016). "Our history." 2016, from <http://www.latrobe.edu.au/about/at-a-glance/history>.

La Trobe University, et al. (1988). Report of the Prosthetics and Orthotics Task Force, Lincoln School of Health Sciences, La Trobe University. Bundoora, Lincoln School of Health Sciences, La Trobe University.

Larkins, F. (2011). Staff and teaching staff trends in selected Australian universities part 2, LH Martin Institute.

Lawrence, J. (1965). Professional soical work in Australia. Canberra, Australian National University.

Leathwood, C. and D. Phillips (2000). "Developing curriculum evaluation research in higher education: process, politics and practicalities." Higher Education **40**: 313-330.

Lindblom, C. (1965). The intelligence of democracy - decision making through mutual adjustment. New York, Free Press.

- Lucas, L. (2014). "Academic resistance to quality assurance process in higher education in the UK." Policy and Society **33**(3): 215-224.
- Lyons, M. (2004). "Powerful practices: The legacy of Margaret Mort." Australian Occupational Therapy Journal **51**(1): 43-48.
- Mahoney, D. (2006). "Establishing the university as the sole provider of higher education: the Australian experience." Studies in Higher Education **17**(2): 219-236.
- Mahony, K. (2003). "The politics of professionalisation: some implications for the occupation of ambulance paramedics in Australia." Journal of Emergency Primary Health Care **1**(3-4).
- Marginson, S. (1997). Markets and education. Sydney, Allen and Unwin.
- Marginson, S. (2006). "Dynamics of National and Global Competition in Higher Education." Higher Education **52**(1): 1-39.
- Marginson, S. (2009). The limits of market reform in higher education. U. o. M. Centre for the Study of Higher Education.
- Marginson, S. and M. Considine (2000). The enterprise university. New York, Cambridge University Press.
- Martin, L. (1965). Tertiary education in Australia. Canberra.
- Martin-Sardesai, A., et al. (2017). "Organisational change in an Australian university: response to a research assessment exercise." British Accounting Review **online**.
- McCormack, J. (2001). "How many social workers now? A review of census and other data,." Australian Social Work **54**(3): 63-72.
- McDonald, C. and A. Jones (2000). "Reconstructing and re-conceptualising social work in the emerging milieu." Australian Social Work **53**(3): 3-11.
- McDougall, A. (nd). Speech Pathology and its Professional Association in Australia, http://www.speechpathologyaustralia.org.au/library/Oral_History_Poster_P.1.pdf - search=%22Speech%20Pathology%20and%20its%20Professional%20Association%20in%20Australia%22 [Accessed 28 September 2006].
- McMeeken, J., et al. (2005). Learning Outcomes and Curriculum Development in Australian Physiotherapy Education. Melbourne, University of Melbourne.
- Meyer, J., et al. (1997). "World society and the nation-state." American Journal of Sociology **103**(1): 144-181.
- Monash University Victorian College of Pharmacy (2003). "History of the College." from <http://www.vcp.monash.edu.au/125/history.html> (17 October 2006).
- Nash, H. (1989). The History of Dietetics in Australia. Canberra, Dieticians Association of Australia.

- Neave, G. and F. van Vlugt, Eds. (1991). Prometheus bound: the changing relationship between government and higher education in Western Europe. Oxford, Pergamon Press.
- Neave, G. and F. van Vlugt, Eds. (1994). Government and higher education relationships across three continents. Oxford, Pergamon.
- Neville, A. (2009). "Problem-based learning and medical education forty years on." Medical Principles and Practice **18**(1): 1-9.
- Nixon, M. (1990). "Professional training in psychology: quest for international standards." The International Journal of Psychosocial Rehabilitation **45**(11): 1257-1262.
- Norman, G. and H. Schmidt (2000). "Effectiveness of problem based learning curricula: theory, practice and paper darts." Medical Education **34**(9): 721-728.
- Norton, A. (2013). Keep the caps off! Student access and choice in higher education. Melbourne, Grattan Institute.
- Norton, A. and B. Cakitaki (2016). Mapping Australian higher education 2016. Melbourne, Grattan Institute.
- Oliver, D., et al. (2014). Employer satisfaction survey, Department of Education.
- Orthoptic Association of Australia Victoria (2003). Submission to the Review of the OPTOMETRISTS REGISTRATION ACT 1996: Issues for the profession of Orthoptics in Victoria., [http://www.vicoptom.asn.au/members/lawreform/lawreform_pdf/Orthoptists Submission 2003.pdf - search=%22history%20orthoptist%22](http://www.vicoptom.asn.au/members/lawreform/lawreform_pdf/Orthoptists%20Submission%202003.pdf-search=%22history%20orthoptist%22) [Accessed 12 October 2006].
- Osborne, D. and T. Gaebler (1992). Reinventing government: how the entrepreneurial spirit is transforming the public sector. Reading MA, Addison-Wesley Publishing.
- Owen, J. (2006). Program evaluation: forms and approaches (3rd edition), Allen and Unwin.
- Parliament of Victoria (2009). La Trobe University Act 2009.
- Patton, M. (2008). Utilization focussed evaluation. Los Angeles, Sage.
- Peters, M. (2004). "Citizen consumers, social markets and the reform of public services." Policy futures in education **2**(3-4): 621-632.
- Peterson, M. and M. Spencer (1991). Understanding academic culture and climate. ASHE reader on organization and governance. M. Peterson. Needham Heights MA, Simon and Schuster.
- Podiatry Board of Australia (2016). Registrant data, Podiatry Board of Australia.
- Pollitt, C. (1993). Managerialism and the public service. Oxford, Basil Blackwell.

- Pollitt, C. (1995). "Justification by Works or by Faith? Evaluating the New Public Management." Evaluation **1**(2): 133-154.
- Pollitt, C. and H. Summa (1997). "Trajectories of Reform: Public Management Change in Four Countries." Public Money and Management **January -March**.
- Productivity Commission (2005). Australia's health workforce. Canberra, Productivity Commission.
- Psychology Board of Australia (2016). Registrant data, Psychology Board of Australia.
- Pussey, M. (1991). Economic rationalism in Canberra: A nation building State changes its mind, Cambridge University Press.
- Quiroga, V. (1995). Occupaitonal therapy: the first 30 years, 1900-1930. Bethesda, Maryland, American Occupational Therapy Association.
- Richardson, A. (2000). Psychology at the University of Western Australia (1913-1988) - A brief history, from <http://www.psy.uwa.edu.au/PsychHistory/> [Accessed 31 October 2006].
- Ryan-Smith, S. (2015). University graduate gluts are leaving us overqualified, in debt and out of work. Sydney Morning Herald. Sydney, Fairfax. **August 11**.
- Sax, S. (1978). Nurse education and training, report of the Committee of Inquiry into Nurse Education and Training to the Tertiary Education Commission (TEC). Canberra.
.
- Schein, E. (1985). Organizational culture and leadership: A dynamic view. San Francisco, Jossey Bass.
- Schnock, W. (1989). Annotations to the history of chiropody-podiatry in Victoria 1929-1979 Melbourne, Walter Schnock.
- School of Pharmacy (UTAS) (2006). "Celebrating 25 years at the University of Tasmania - Pharmacy Education in Tasmania." from <http://www.pharmacy.utas.edu.au/history/schoolhistory.html> (Accessed 17 October 2006).
- Scriven, M. (1991). Evaluation Thesaurus (4th ed.). Newbury Park, CA, Sage.
- Senge, P. (2000). The puzzles and paradoxes of how living compaines create wealth: why single-valued objectives fundctions are not quite enough. Breaking the code of change. M. Beer and N. Nohria. Boston, Harvard Business Review Press.
- Smith, M. K. (2000). Curriculum theory and practice. the encyclopedia of informal education.
- Stake, R. (1967). The countenance of educational evaluation. D. f. E. Children.
- Stake, R. (2004). Standards-based and responsive evaluation. Urbana-Champaign, Sage.
- Star, C. and S. Hammer (2008). "Teaching generic skills: eroding the purpose of universities, or an opportunity for renewal." Oxford Review of Education **34**(2): 1-15.

- Stark, J. S. and L. R. Lattuca (1997). Shaping the college curriculum: academic plans in action. Needham Heights, MA, Allyn and Bacon.
- Stufflebeam, D. and G. Madaus, Eds. (2000). Evaluation models: viewpoints on educational and human services evaluation (2nd ed). Boston, Kluwer Academic.
- Taylor, C. (1989). Sources of the Self: the making of the modern identity. Cambridge, Cambridge University Press.
- Teusner, D. and A. Spencer (2003a). Dental Labour Force, Australia 2000. AIHW cat. no. DEN 116. Dental Statistics and Research Series No. 28. Canberra, Australian Institute of Health and Welfare.
- Thearle, M. (1998). Where have we come from? The evolution of podiatry. 18th Australian Podiatry Conference. Conference Proceedings Volume 2: "The Coming of Age", Adelaide, Australian Podiatry Council.
- Toohy, S. (1999). Designing courses for higher education. London, Routledge.
- Touyz, S. (1995). "Clinical psychology in dissent: the challenge ahead." Australian Psychologist **30**(3): 191-195.
- Turtle, A. (1997). "Institution, ideology, icon: psychology at Sydney 1921-1996." Australian Journal of Psychology **49**(3): 121-127.
- University of Melbourne (2006). "School of Dental Science: History of the School." from http://www.dent.unimelb.edu.au/dsweb/about_school/history.html (17 October 2006).
- University of Melbourne (nd). "History of Medicine, Dentistry & Health Sciences at Melbourne ". from <http://www.chs.unimelb.edu.au/programs/jnmhu/umfm/biogs/FM00051b.htm> (Accessed 19 September 2006).
- University of Sydney (2003). "History of dentistry at the University of Sydney." from <http://www.dentistry.usyd.edu.au/about/history.php> (Accessed 17 October 2006).
- Upfold, L. (2000). "Australian audiology: some factors in its development." Australian and New Zealand Journal of Audiology **22 (Supplement)**: 3-9.
- Walker, R., et al. (2010). "The impact of curriculum change on health sciences first year students' learning." Instructional Science **38**: 707-722.
- Wilde, S. (1999). From Driver to Paramedic: A History of the Training of Ambulance Officers in Victoria. Melbourne, Ambulance Officers' Training Centre.
- Williams, B., et al. (2009). "From stretcher-bearer to paramedic: the Australian paramedics' move toward professionalisation." Journal of Emergency Primary Health Care **7**(4).
- Wilson, J. (2005). "An overview of social work education in Australia." PORTULARIA **5**(1): 187-203.

Wood, D. (2003). "ABC of learning and teaching in medicine: problem based learning." British Medical Journal **326**(8 February): 328-330.

Wood, D. (2008). "Problem based learning: time to stop arguing about the process and examine the outcomes." British Medical Journal **336**: 971.

Worthen, B. (1990). Program evaluation. The international encyclopedia of educational evaluation. Toronto, ON, Pergammon Press.

Wozniak, H., et al. (2005). "Inquiry based learning in health sciences: countering the limitations of 'problem based learning'." Focus on Health Professional Education **7**(2): 18-30.

Yates, L., et al. (2016). Knowledge at the crossroads. Singapore, Springer.

Yin, R. (2014). Case study research. California, Sage.